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EDUCATION AS CAPITAL: A CRITIQUE

by

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A THESIS
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Date ...Sept. 15, 1981......

Whatever there is of value in this thesis is dedicated to my parents, Norman and Amy Belcher, for their encouragement and support for my education, and to my daughters, Amy and Jasmine El-Nahhas.

ABSTRACT

The idea that inherited and acquired capabilities (knowledge and skills) possessed by workers constitute capital in the same sense as material capital (e.g., money, land) was reintroduced to neo-classical economics by the American economist Theodore William Schultz in 1960 and has had a revolutionary effect upon educational ideology, policies, curricula, pedagogy, and organizational structure in North America, Western Europe, and much of the Third World. Human Capital Theory, as developed and formulated by Schultz, posits that both the quantity and quality of human capital are dependent upon several factors, such as standard of health, availability and mobility of labor, on-the-job training, and education.

Education, according to Schultz, is the one factor of which individuals in modern industrialized capitalist countries have not acquired enough in order to maximize their productive capabilities (and hence, their income); and it is one of several factors of human capital which is grossly underdeveloped in much of the Third World. This idea, like the "post-industrial" society theory in sociology, asserts that since World War II, there have been revolutionary changes in technology resulting in a drastic reduction and eventual elimination of unskilled occupations, accompanied by a proliferation of new and up-graded occupations requiring workers with sophisticated scientific and technological skills. The demand for highly educated workers was thought to be infinitely elastic, rising ever faster than the supply.

Human capital theory, therefore, shifted the traditional emphasis on physical capital accumulation to human capital formation for individual and national economic growth. Human capital theorists, like their counter-

parts in sociology, the technological functionalists, called upon governments and educators to implement changes in educational ideology, policy, curricula, pedagogy, and organizational structure so that systems of public education could function more effectively and efficiently in meeting the "needs" of a modern industrialized society -- as well as competing more effectively with the Soviets. Individuals and society should, thus, invest in more and better quality schooling in order to increase human capital accumulation, so that both would realize increased income from greater productivity.

The emphasis placed upon the development of human capital (to generate a stream of income and greater productivity benefiting both the individuals themselves and society as a whole) gained popularity on a mass level during the early 1960's as a panaces for many social ills -- including poverty and gross social inequality -- and renewed faith in democracy.

In this thesis, we attempt to show the theoretical and empirical inadequacies of human capital theory and to unveil the ideological underpinnings of it. It is our contention that human capital theory has served to obfuscate the class structure of capitalist society.

The relationship between education, occupation, and labor income from the human capital perspective, as specified by the rate-of-return analysis and various neo-classical economic assumptions, depends, ultimately, on the supply and demand of both labor and jobs, although human capital theory is primarily a supply theory (of labor). We have demonstrated that high levels of human capital in capitalist societies does not necessarily mean it can be productively employed. It is not the inadequacies of individuals that are responsible for their unemployment, but rather the structure and dynamics of labor markets in capitalist societies. Human capital does not guarantee one a competitive rate of return, unless it is scarce and in high demand. Human capital has not superceded physical capital as the primary source of wealth and power. Very few workers are self-employed. Employment is still subject to the power of capitalists.

The nature of the changes which have occurred in the educational system reflects the need for hierarchical differentiation of individuals in the labor force. The increased stratification and differentiation of schools by type and level facilitates the efficient allocation of individuals into the highly stratified, segmented labor markets.

Rather than workers requiring more and better quality schooling for job adequacy in a knowledge/skill-intensive occupational structure, we conclude that the primary rationale was a need for a more overt socialization for the job market, which was becoming increasingly deskilled, bureaucratic, alienating, and boring; as well as allowing differences in education, which became much more differentiated in type and level during the 1960's, to continue to be a primary basis for differential allocation in the occupational structure, and hence, maintaining socio-economic inequality and the continuation of a class society.

In addition to providing certification for allocation to the labor force, the educational system serves to stabilize the status quo, reproduce the class system, and to legitimize it by socializing individuals to accept their place in society. Rather than serving the needs of the non-elite, schooling serves the needs of the elite. Thus, it is the reproduction of the class structure which sets the limits of educational policy and reform.

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CHAPTER I

INTRODUCTION

Public systems of schooling for all children in a society is a relatively new concept in human history. Not only is it new, it is controversial. Rather than developing consensus on the role and function of public systems of schooling, educators seem to be more divided now than ever on its purpose. Heated debate and dissention seems to be accepted as part of the process of developing educational policies. That debate carries over into the political arena when local, provincial, state, and federal governments are involved in the administration and/or funding of these public systems of schooling.

The purpose of this study is to examine and explain the major shifts in educational policies during the period 1945-1980. There are broad similarities in these shifts across North America, Western Europe, and much of the Third World. In particular, it is the sudden and explosive expansion of both the public systems of education and educational participation at all levels of schooling which will be examined and explained. In the words of Karabel and Halsey (1977B:12), "(t)he rate of growth of educational systems after World War II dwarfed even the earlier lurch of European societies in the nineteenth century into universal primary education."

Both the scale and pattern of this educational change have been the subject of study by sociologists, economists, and other social scientists. In fact, a vigorous debate concerning the explanation of the post-World War II educational expansion, particularly in the Western industrialized capitalist countries, has been going on among social scientists of different theoretical persuasions. Technical-functionalist, Weberian, neo-Weberian, Marxist, neo-Marxist, and human capital theorists have located the causes of this change in different forces and characteristics of contemporary industrial capitalism. But has social science theorizing about education played any discernible role in the expansion of educational systems, perhaps by providing social scientific rationale for expansionist policies? This question, it seems, has not received sustained attention. It seems highly appropriate to ask how social science knowledge of education, particularly since World War II, has influenced changes in education which have occurred in Western industrialized capitalist countries as well as in the underdeveloped countries.

Although this phenomenon cannot be explained entirely by one factor alone, it is posited that the development and subsequent acceptance of human capital theory by economists, and soon after by educators and politicians, has had overwhelming influence in precipitating a major shift in educational policies during the late 1950's. Furthermore, this was reinforced by the dominance of technological functionalism in sociology and its influence on sociologists and educators; and in particular, by the dominance of the technical-function theory of education. Thus, human capital theory and the technical-function theory of education developed within the paradigm of functionalism, which was the dominant paradigm encompassing all the social sciences in the United States, Canada, France, Germany, Scandinavia, and Japan (Karabel and Halsey, 1977B:4).

The major shift in educational policies during the late 1950's and early 1960's can be conceptualized in terms of a rejection of elitist education and conservative philosophy and the movement towards modern liberalism and "mass" education. The reasons for this shift are multiple and complex. Two major factors which set the stage for this development are the post-World War II baby boom and the "Sputnik syndrome" of the Cold War. However, it is posited that "...sociology provided a convincing theoretical rationale for the expansion and differentiation of education..." and human capital theory provided the economic rationale for increased educational investment and "...exerted a considerable influence not only in the academy but also on the development of educational systems throughout the world" (Karabel and Halsey, 1977B:11-12). This thesis focuses on the theoretical character of this rationale.

This thesis is a historical one in the sociology of knowledge tradition utilizing the sociology of sociology approach to explain the development of human capital theory and its subsequent influence on education and public policy in most capitalist countries, both developed and underdeveloped.

Thus, knowledge of the social and historical context is a necessary part of the explanation. The framework employed is that of critical, conflict sociology, because we feel that by focusing on conflict better explanations of social reality are gained than by focusing on consensus. Therefore, we reject the functionalist framework which is based on value consensus and social harmony.

In rejecting the functionalist framework, we also reject the notion that social science is or ever can be value-free or neutral. The values underlying this study are not veiled. Unlike many rather naïve functionalists of the 1950's,[1] there is no delusion here that the approach used, let alone this study in particular, will solve any problems on the level of praxis. However, critical assessment using the historical, comparative approach is a powerful tool for understanding social reality. We are a product of our past; and although we may be ignorant of it, we cannot escape its influence.

The purpose of this thesis is to understand why and how we are at the present state of affairs in education. Although ideological currents and conflicts are a factor in this process, the intent of the thesis is to illustrate the need for a meta-theoretical synthesis with possibilities for praxis rather than a purely ideological social-action approach.

The limitations of the thesis derive primarily from the fact that this is an information-rich field of inquiry. Theoretical and empirical research in economics and sociology has a long, rich history. Educational research, though much more recent, has grown in volumn and importance since the 1930's. Karabel and Halsey (1977B:1) remark that "(o)ver the last generation educational research has come from the humblest origins of the social sciences to occupy a central position in sociology, as well as to receive considerable attention from economists, historians, and anthropologists."

Consequently, the sheer volumn of literature makes it impossible for one to deal with it all. Not only does one have to be selective, but because of the plethora of dimensions to the issues, it is virtually impossible to be truly comprehensive.

The human capital literature in economics is not only massive, it is split into differing sub-schools. It was necessary, therefore, to deal with human capital theory as formulated by Theodore W. Schultz. The Schultzian model of human capital theory was chosen because there is general consensus among economists that Schultz is the founder of the modern form of human capital theory.[2] Since Schultz's announcement of this theory in 1960, other economists have developed variants but the Schultzian model has remained dominant. Furthermore, it is the Schultzian model of human capital which has had great influence in public policy formation around the world. The fact that Schultz was awarded the 1980 Nobel Prize in Economics for his work on human capital theory is evidence of its importance.

Structural functionalism in sociology, and the technical-function theory of education in particular, has not been marked by internal dissention. The theory of social stratification developed by Davis and Moore (1945A) is the accepted theoretical foundation of this school. Theoretical and empirical studies anchored in the technical-function theory of education tradition are plentiful. Consequently, only some of the well-known literature is used.

Because this thesis draws attention to the fact that human capital theory, and to a lesser extent the technical-function theory of education, have had world-wide impact on systems of public schooling and policy formation, literature other than the primarily American material is also used. An attempt is made to discuss the Canadian situation and in broad general terms the situation in Western Europe and the Third World. Here too, it is impossible to deal with all the literature. Literature was selected on the basis of it being both well-known and reasonably thorough.

In addition to the massive volumn of literature relevant to this thesis, there is another limitation -- one which is more difficult to deal with -- posed by the fact that "...the relation between thought and political action is one of unusual if not unprecedented contention" (Karabel and Halsey, 1977B:1). Our rejection of value-free social science has already been mentioned.

The complexity of modern society makes it virtually impossible for governments to develop policies without relying on information made available through social science research. The fact that much of the social science research dealing with education is normative, politics becomes a very important aspect of it. Even "empirical" research is colored by values in that one's value-orientation determines to a great extent what questions are posed and what constitutes "fact".

Research has been viewed by both economists and sociologists as being both useful and important to public policy formation. The use of such research for educational policy formation is no less important. Schultz is very explicit about the fact that one of his main aims in conducting human capital research is to actively influence public policy formation.

> Human capital research has important policy implications, as I shall show.
>
> My purpose in this survey is to examine some of the interactions between policy and research with special reference to human capital. As I proceed, I shall attempt to appraise the more important parts of this research -- with a view to assessing the need for additional work in this area that may be useful in making policy decisions...
>
> In short, then, the central purpose of my endeavor is to winnow the research opportunities in the area of human capital. Ideally, I would like to identify these opportunities and rate them in accordance with the potential value of their contributions to private and public decisions. But I shall settle for less because of the limitations of my knowledge and because of

> the uncertainty of the nature of the advances in knowledge that can be achieved by means of research (Schultz, 1972A:1).

In discussing the setting and scope of a survey Schultz conducted, he remarked,

> (l)astly, and most importantly, I shall enter upon the research opportunities in substantial detail...Because of the magnitude of our educational activities, it is understandable that it should be a major social question. National concern about this problem is bound to increase, especially so in congressional committees and in public discussions pertaining to the allocation of federal funds to education (Schultz, 1972A:2;24).

Advances in research technology and quantitative methodology are considered positive, necessary developments by most social scientists, not only in understanding social reality but for influencing public policy with the intention of changing society. It is not only Marxists who state that the object is to change society, not just to understand it.[3]

Schultz (1972A:67;23-24) provides us with some insights into this mentality of change within the modern liberal perspective.

> The research opportunities are now neatly arranged in two lots. One is large with many different policy issues on display, and the other contains a few puzzles. In deciding how much to pay for any of these offerings, it is the better part of wisdom to make sure that the economist who would be saddled with it is equipped to do it. Obsolescence has not been gentle in its treatment of economists, as is clear from the recent changes in the state of economics. Some of these advances have already been considered, mainly in connection with the various classes of policy issues. What remains to be done, therefore, is to consider some of the additional properties of these advances in analyzing the role of human capital in the economic system and to present some of the hypotheses that have emerged.

> Despite the progress in dealing with social questions, it still is true that the hallmark of economic analysis is economic efficiency. It stands for rigorous analytical workmanship when it is not encumbered by the problem of equity, i.e., the distribution of personal income. But it is seldom that the realization of additional economic efficiency is neutral in its effects upon the distribution of personal income. As yet, the tradeoff choices between efficiency and equity are not clearly established, and when they become known the choice that matters depends on the values that determine social preferences. What is often overlooked, however, is the fact that there are policy choices where additional economic efficiency will also contribute to the social goal of reducing the inequality in the distribution of personal income. This is frequently true in the area of human capital.

Human capital, like material capital, is a complex heterogeneous aggregate. It is conceptualized and quantified in terms of quality of labor. This aggregate human capital can be broken down into separate factors, all of which require investment in order to develop the human capital. Schultz (1971B:8) classifies these sets of factors as follows: formal schooling and higher education, on-the-job training (specific and general), migration (labor mobility), health (physical and mental), economic information, personal distribution of income, international trade, international movement of skilled persons, the allocation of resources in the production of educational services, the effects of discrimination upon motivation in school performance, the treatment of "educated labor" under the production function, family planning, earnings foregone as part of the theory of allocation of time, and research.

Schultz emphasizes the inadequacies in classical and neo-classical capital theory which conceptualizes material capital as homogeneous.

Since the early 1940's, Schultz has been actively seeking an explanation for the sources of the gains in productivity in the United States. He became critical of the acceptance and use of homogeneous material capital in economic growth models, and resurrected Irving Fisher's idea of an all-inclusive concept of capital which conceived of capital as being vastly heterogeneous including both human and non-human form. To underscore the importance of this expanded concept of capital, Schultz (1971B:vii) remarks that "(i)f it were possible analytically to aggregate all of the different forms of human capital, it would exceed by a wide margin all non-human capital."

Schultz and his followers have been primarily concerned with the effects of education on human capital formation, since there appears to be adequate investment in health and labor mobility (migration) in the United States. On-the-job training has been researched principally by Jacob Mincer and this has been incorporated into the Schultzian model of human capital development. Canadian and Western European human capital economists have, likewise, concentrated their research efforts on the relationship between education and human capital formation (and correlatively between education and economic growth). Emphasis on education as an important investment for human capital formation in Third World countries is prevalent, but Schultz warns that other factors in human capital development which are taken for granted in developed countries, such as health and labor mobility, are not adequately developed. Thus, underdeveloped countries require investment in many factors of human capital. Emphasis on education, without the development of these other factors, is therefore a great mistake. However, this thesis focuses on the factor of education.

Attention is therefore drawn to the limitation of this focus alone when discussing underdeveloped countries.

Schultz (1971B:vii) states that "(t)he thrust of my studies has been primarily to clarify the investment processes and opportunities that provide the incentive to invest in human capital." He is concerned with influencing economic thinking so as to include human capital, with influencing governments to develop economically rational and efficient budgets and policies, as well as influencing individuals in making economically rational and efficient decisions in the development of their own human capital. These three elements run through most of Schultz's work. He calls for an investment approach to tackle problems of both national (macro-) economic growth and individual (micro-) economic growth. Although he feels that the investment approach and micro-economic analysis can provide the tools for theoretical and empirical advances in human capital theory, Schultz does not focus solely on the micro-level. It would be a great mistake to assume that Schultz's work is primarily micro-analytic, as he is equally concerned with macro-economic growth and public policy. Schultz's (Ibid.:4-5) own explanation of his investment approach is contained in the following quotation.

> An investment approach, I am convinced, is required in thinking about economic growth. In this approach the stock of capital is augmented by investment, and the productive services of the additional capital increase income, which is the essence of economic growth. It is a major step toward a general theory when all investment resources are encompassed and allocated in accordance with the meaningful economic standard established by the relative rates of return to alternative investment opportunities. Thus, in theory, this approach is grounded on an all-inclusive concept of investment and an ac-

> counting of all additional investments gives a complete and consistent explanation of the marginal changes in the stock of capital, of the marginal changes in the productive services from capital, and of the marginal changes in income and, accordingly, of growth...
>
> It is my contention that economic thinking has neglected two classes of investment that are of critical importance under modern circumstances. They are investment in man and in research, both private and public.

Quantification of the investment in education and of the return on that investment is simpler on the individual (private) level than it is on the national (societal) level. Thus, Schultz thinks that it is more productive to start with micro-economic analysis and estimate the private rates of return to investment in education and then try to develop a better measure of the social rates of return than the present one.

Furthermore, not only are the social rates of return based upon and related to the private rates of return, but the private rates of return can be utilized by policy-makers "...to induce individuals to adapt their own behavior pattern to the socially desirable one" (Hanoch, 1967A:329). Therefore, the prevailing focus on private rates of return to investments in education by human capital (especially American) economists during the past fifteen years should not be viewed as neglect or lack of interest in the social rates of return nor in public policy formation. Hanoch (Ibid.) argues that data from private rates-of-return analysis serve as a necessary, albeit modest, basis for a more complete analysis of as well as social decisions about education.

> Hence, it is clear that the individual private rates and the associated private demand functions for schooling are essential data for the evaluation and determination of social decisions. The present study should thus be construed as a modest basis for a more complete analysis of income-determination and of decisions about education, from both the private and the social points of view.

Human capital theory has greatly influenced the perceptions of individuals towards education and socio-economic mobility which has in turn affected their decisions for increased educational participation. It has likewise influenced educators and politicians as reflected in the significant changes in educational policies. Basically, it is the relationship between education, occupation, and labor income on the individual (micro-) level and the relationship between education, occupation, and national income on the national (macro-) level as posited by human capital theory, as well as the technical-function theory of educational change, which provided the impetus for changes in individual decision-making and public policy. It is the examination of this relationship as formulated in human capital theory and the technical-function theory of education which will become the primary subject of critical analysis in this thesis.

Changes in the structure of public systems of education (including such attributes of it as accessibility and transferability), the administration of those systems, the financing of them, as well as the internal curricula changes will be discussed. The discussion is intended to be broad and to include the United States, Western Europe, and the Third World as well as Canada.

Although it is important to distinguish between the actual theoretical/empirical analysis developed by human capital economists and its use as an evaluative tool for public policy formation and policy choices, it is also the case that this distinction often looses meaning in much of the human capital literature. This problem arises because of the importance Schultz and other human capital economists put on actively influencing public policy. Thus, while admitting "...it still is true that the hallmark of economic analysis is economic efficiency", in searching for explanations of economic puzzles and paradoxes, Schultz (1972A:23) realizes that the effects of economic research on public policy are not neutral.

Since much of the economic research in the United States is conducted by non-profit agencies, it is directed towards the allocation of funds administered by those agencies and so is program-oriented rather than policy-oriented -- and, therefore, is "...less than optimum in terms of social benefits" (Schultz, 1972A:22).

Schultz is strongly committed to the development of informed public policy which incorporates the latest theoretical and empirical advances in economics. Since he believes that "(h)uman capital research has important policy implications...", and "...it is not always clear how the new information derived from them [economic studies] can serve those who are making the policy decisions that determine the allocation of resources to the many forms of human capital" (Schultz, 1972A:1;5), Schultz (Ibid.:5) stresses the need for "...decoding and interpreting this information with a view of making it meaningful in arriving at policy decisions." There is also the added dimension of there being both a short-term and a long-term view in developing and utilizing new information which affects private and public decision-making.

Social policy, however, is not concerned solely with economic efficiency. Public policy is developed by politicians to meet perceived social, political, and psychological needs, as well as economic ones. Furthermore, as in education, there seem to be many social goals, some of which are mutually contradictory, and there is often also a lack of consensus on both the priorities and the methods to achieve them. Values underlying these social goals also affect the range and type of options considered. The ranking of social goals in terms of priorities is also based upon value-orientation. This is a political problem and is exasperated by budgetary constraints.

Economic and sociological research itself is premised on values. Hence, the use and effect of social science research in public policy formation is inherently value-laden. This often presents problems in terms of socio-economic policy choices, since such choices often are not neutral in their effects and often conflict with other social goals.

Schultz (1972A:60) describes some of these problems and his hope for some progress through the contribution of advances in economic theory and empirical methodologies.

> Meanwhile, endeavors to develop useful social goals for the purpose of determining national policy are reaching an impasse for lack of a meaningful common denominator for evaluating and rating the various social goals. Social theory provides no acceptable standard for determining the relative value to society of alternative social goals. The work by the panel and staff of the Department of Health, Education, and Welfare that entered into the preparation of Toward a Social Report identifies a wide array of social goals: better health and less illness, opportunity for social mobility, improvement in the physical environment, reduction of poverty, less crime and

> more safety, advances in the sciences, arts, and learning, and still others. But social theory and measurement do not suffice to rate the value of a given achievement with respect to any one of these social goals relative to that of the others. It is my contention that the extensions of economics as a consequence of the recent developments in economic theory and empirical analysis already referred to make it possible to bring some of these social goals into our national accounting and thus develop a more all-inclusive GNP.

The main dilemna faced in economic policy choices is in the problems faced by questions of efficiency and equity. By equity, Schultz and other human capital economists refer to the distribution of personal income. It is much easier to establish agreement on the specific efficiency of a particular program or of the general efficiency of a particular program on the entire economy than it is to evaluate the effect that choice has upon equity. Schultz (1972A:23) remarks that

> (a)s yet, the tradeoff choices between efficiency and equity are not clearly established, and when they become known the choice that matters depends on the values that determine social preferences. What is overlooked, however, is the fact that there are policy choices where additional economic efficiency will also contribute to the social goal of reducing the inequality in the distribution of personal income. This is frequently true in the area of human capital.

Schultz (1972A:5) makes it quite clear that "(h)uman capital is strictly an economic concept" and that "(a)lthough it pertains to particular attributes of man, it is not intended to serve those who are engaged in analyzing psychological, social, or cultural behavior."

This conceptual stipulation sets definite, but perhaps undue, limitations on the meaning and applicability of human capital research and even more so in regards to the development of individual and public decision-making since it is very difficult, if not impossible, to separate the economic from the political, sociological, and psychological dimensions.

Furthermore, Schultz (1972A:9) points out that

> (t)he core of economic analysis rests on the assumption that preferences are given and that it is the function of economic activities to serve these preferences as best they can with the human and nonhuman capital at the disposal of the economy to obtain income streams and by transforming a part of this income by means of investment into additional forms of capital.

Schultz (*Ibid.*) contends that

> ...physical, biological, psychological, and cultural [attributes] ...account for both the social values that determine preferences and the economic value of the producer and consumer services that a people render, whether they come to them as earnings or directly as personal satisfactions.

However, the values people hold and the structure of social institutions are in dynamic relationship with each other and with technological change and economic growth. Change in any one element necessarily affects the others, though there often are lags in adjustment to such changes. Schultz (1971B:7) is aware of this, but points out that much of the literature in economics "...is naive with respect to the manner in which the economy adjusts and people gain (lose) as workers and consumers."

One of Schultz's goals in developing human capital theory is to "...bring technical changes into the corpus of economic theory" by transforming it into *capital* for the purposes of economic analysis and "...to treat much of scientific research, and also a large part of education and other skill-producing activities, as 'industries' producing new forms of capital that are more efficient than particular old forms of capital" (Schultz, 1971B:19-20).

Thus, any entities (including technological techniques) that contribute to production have an economic value and "...for purposes of economic analysis,...a technique is no more or less than a unit of capital,... a set of techniques representing a technology is a capital structure, and...a technical change is an alteration of a capital structure" (Schultz, 1971B:20). Therefore, "...the long-standing endeavor to distinguish between techniques and capital goes by the board" (Ibid.).

In addition to including technological change and acquired human skills and knowledge in the capital category along with material capital, Schultz (1971B:253) differs from most classical and contemporary economists in that he includes institutions "...as variables within the economic domain, variables that respond to the dynamics of economic growth." Thus, education as an institution is brought into the realm of economic analysis as a factor in the explanation of capital accumulation and economic growth. Schools provide a public service. Supply and demand analysis can be utilized to determine the economic value of that service (Ibid.:254).

Consequently, part of what Schultz (1971B:255) is attempting to explain with human capital theory are "...those changes in institutions that occur in response to the dynamics of economic growth" since "...the process of growth alters the demand for the service and... this alteration in the demand brings about a disequilibrium between the demand and supply measure in terms of longer run costs and returns."

Although Schultz (1971B:255) realizes that the supply of the service of a particular institution (such as education) can be altered independently of economic growth dynamics (and that this cannot be explained by the theory), such a change in supply will result in economic effects which can be explained by the theory.

Human capital theory attempts, in part, to account for the "institutional stresses and strains" produced by economic growth as well as the institutional lags. "Since we can specify and identify these institutional lags, we can also analyze the benefits in terms of efficiency and welfare that could result from reducing these lags" (Schultz, 1971B:262). Here, then, are some of the normative elements of the human capital analysis which link this analysis to that of the contribution of education to social mobility and economic growth -- the latter being of central concern to functionalist sociologists as well as human capital economists.

The main cause of institutional stresses and strains in Western industrialized capitalist societies stems from advances in the production process and the interrelated changes in the occupational structure which human capital economists and technological functionalists consider to be inherent in "...our type of economic growth" (Schultz, 1971B:163). This is, in fact, the common ground shared by economists and sociologists, as well as by educators and politicians, during the era when functionalism enjoyed unchallenged domination in the social sciences -- during the 1950's and early 1960's.

Human capital economists refer to the sudden high demand for highly educated, skilled workers witnessed after World War II and the concurrent increase in the value of such services (manifested in rising salaries and wages). Sociologists writing in the technological functionalist vein focused on the increasing differentiation, specialization, and hierarchization of the labor force in an occupational structure which was undergoing fundamental changes which they credited to advances in technology.

The concept of "post-industrial" society which developed in sociology provides the common Weltanschauung for human capital economics, as well as for the technical-function theory of education -- despite the fact that economists, sociologists, and educators ask different questions and have different focuses. Convergence of views among the three groups is reflected in their shared belief that 1) knowledge and skills required for job adequacy in modern industrialized countries are increasing due to continuous technological advances; 2) the proportion of occupations requiring more knowledge and skills is rising significantly with an accompanying decrease in the proportion of those occupations requiring little knowledge and skill; and 3) increased amounts of formal schooling are required because 4) educational requirements for most occupations are constantly increasing to keep up with technological change (Collins, 1971A:1004).

Questions asked by human capital economists and which are part of this thesis stem originally from

> (t)he growth problem, in terms of economic decisions, [and] requires an investment approach to determine the allocation of investment resources in accordance with the priorities set by the relative rates of return on alternative investment opportunities. It is applicable not only to private decisions but also to public decisions guided by economic planning (Schultz, 1971B:195).

These questions deal with education as a public institution which produces and distributes a form of human capital (knowledge and skills) which economists measure in terms of differential earnings. The following questions, then, are important in this thesis: 1) What are the private and social rates of return to investment in different levels of schooling? 2) How reliable a measure are private and social rates of return to investment in education for individual decision-making and social policy? 3) "What are the effects of schooling and higher education upon the distribution of personal income?" (Schultz, 1972A:24). 4) What is the relationship between the educational system and the occupational structure? 5) What is the relationship between the educational system and the labor market (and specifically, between education, occupation, and labor income)? 5a) Do schools teach particular knowledge and technical skills required for job adequacy? 5b) Are workers with more years of schooling (of even general education) better able to adjust to changes in skills and knowledge required on the job than those with less years of schooling? Why? 5c) What is the relationship between productivity and earnings? 6) What is the importance of quality versus quantity of education in determining efficient and equitable allocation of resources?

These questions are all concerned in one way or another with assessing the value of education to the individual and/or to society. From that common ground, there is a divergence between the goal of economic efficiency and social equity (reducing the inequality in the distribution of personal income). Schultz (1972A:24) asserts that human capital theory has much to contribute to a better understanding of investment alternatives and efficient allocation of resources; and that, even more importantly, human capital theory is useful in determining "...policy choices where additional economic efficiency will also contribute to the social goal of reducing the inequality in the distribution of personal income."

Chapter II provides a general discussion of human capital theory as it pertains to education as well as a more detailed discussion of the macro- and micro-level approaches used to determine the relationship between education, occupation, and labor income.

Chapter III discusses the influence that human capital theory has had on educational policies and the organizational structure of systems of public education at all levels of education in Canada, the United States, Western Europe, and the underdeveloped countries of the "Third World". A brief description of the influence human capital theory has had on research is also included.

Chapter IV outlines the technical-function theory of education and how the relationship between education, occupation, and labor income is viewed from the sociological perspective of technological functionalism. The concepts of equality of educational opportunity and of meritocracy which constitute a part of this perspective are also discussed.

Chapter V deals with the influence which the concept of equality of educational opportunity has had on educational policies and organizational structure of systems of public education in Canada, the United States, Western Europe, and underdeveloped countries. A brief discussion of the influence of this concept on research is also included.

In Chapter VI, a critique of human capital theory and of the technical-function theory of education is presented. These theories are critiqued on both theoretical and methodological grounds.

Chapter VII presents conclusions drawn and offers possible alternative explanations for the relationship between education, occupation, and labor income -- and, more importantly, on the function of schooling in Western capitalist societies.

CHAPTER I

Footnotes

[1] Karabel and Halsey (1977B:3) remark that

> (i)t would hardly seem an exaggeration to say that researchers in the field, armed with the dual weapons of structural functionalist theory and scientific method, envisaged few problems that would ultimately prove intractable.

[2] When Schultz (1959A:110) remarked that "...the mainstream of modern economics has by-passed undertaking any systematic analysis of human wealth", he is referring to the period when Alfred Marshall's ideas dominated economics from the late 19th century to the early 1940's. (This came about by misinterpretation and misunderstanding of Marshall's ideas on human capital as shall be discussed later.) Thus, Schultz uses the word modern to refer to relatively current times. Kiker (1966A:488) states that "...modern economics began with Sir William Petty..." (in the 17th century). It is important to understand Schultz's use of the word "modern" because many economists have considered human beings and/or their skills as capital and recognized the importance of investing in such capital (human beings) in order to increase their productivity. Considering human skill as capital was part of the English Classical School and was "...adapted by economists interested in the distribution of income and the theory of production" (Kiker, *op. cit.*:496). Kiker (*Ibid.*:482) reports that "(o)ne of the first attempts to estimate the money value of a human being was made around 1691 by Sir William Petty." Other well-known modern (both past and current) economists who consider human skill as capital and quantified it in monetary terms include: Adam Smith (1776); Jean Baptiste Say (1821); William Farr (1853); Theodor Wittstein (1867); J.R. McCulloch (1870); Friedrich Kapp (1870); Johann H. von Thunen (1875); William Roscher (1878); Sir Robert Giffen (1880); Henry D. Macleod (1881); Ernst Engel (1883); Alfred Marshall (1890); J. Shield Nicholson (1891); Irving Fisher (1897+); Alfred de Foville (1900); Henry Sidgwick (1901); Miles M. Dawson (1904); A. Barriol (1908); John Stuart Mill (1909); Yves Guyot (1914); S.S. Huebner (1914); Edgar Crammond (1915); Harold Boag (1916); Ernest Bogart (1919); William S. Rossiter (1919); Edward A. Woods and Clarence B. Metzger (1927); Friedrich List (1928); Louis Dublin and Alfred Lotka (1930); John M. Clark (1931); J.R. Walsh (1935); Nassau Senior (1939); Walter Bagehot (1953); Leon Walras (1954). The underlined dates refer to those authors who are well-known in the history of economic thought. See Kiker (1966A) for a full discussion.

Kiker is somewhat critical of the ignorance Schultz and other current human capital economists have about the history of human capital research in economics. Kiker's (1966A:497) essay was written as a reference source "(s)ince many of them [current human capital economists] fail to cite predecessors..." and to point out that

> (t)he human-capital concept was also used by past writers to demonstrate the power of a nation, propose new tax schemes, determine the total cost of war, emphasize the economic significance of human life, and aid courts in making decisions in cases dealing with compensation for personal injury and death. These uses may suggest interesting additional problems to contemporary economists.

Cohn (1972B:22-31) attempts to clarify both the widespread misunderstanding of Alfred Marshall's views on human capital and the current "...allegations raised by Schultz and others about the neglect of human capital analysis by early economists..." which have caused a great deal of confusion in current human capital literature. Cohn (Ibid.:23) points out, as already illustrated, that there was "...extensive recognition of the importance of human capital among early economists." Cohn (Ibid.) relates this to Schultz's assertion that human capital has been neglected by economists in the past by stating that "...the bulk of their presentation was preoccupied with material wealth and material capital." Furthermore, "...it appears that current ideas in the economics of education are not novel nor are they new; rather, it is the refinement of tools, data, and concepts -- as well as the intensification of study in the area of human resources -- that has so revolutionized modern economic thought" (Ibid.:31).

Schultz (1959Ab:111-112) presents his view of how and why Alfred Marshall and his followers cast human capital theory to the distant margins of economics in the early years of the 20th century and the effect this has had on "mainstream" economics for nearly fifty years.

> Another and more compelling reason why economists have neglected human wealth has arisen from a conventional restriction on the concept of capital. Instead of developing and using an all-inclusive concept of capital, economists have restricted their definition of capital to include only those classes of wealth that are commonly bought and sold in the market place. Irving Fisher, in a series of papers published just before the turn of the century and then in his excellent but grossly neglected book, The Nature of Capital and Income, clearly and cogently presented an all-inclusive concept of capital. But the prestige of Alfred Marshall was too great; his ideas on this issue prevailed as his students and many followers entered upon the stage. Marshall dismissed Fisher's comprehensive concept of capital in these words: "Regarded

from an abstract and mathematical point of view, his position is incontestable. But he seems to take too little account of the necessity for keeping realistic discussions in touch with the language of the market-place." Marshall concluded his appendix on "Definitions of Capital" by again making it clear that "...we are seeking a definition that will keep realistic economics in touch with the market-place..."

Free men are not for sale, and, thus, Marshall's market-place concept of capital had the effect of excluding all capital that becomes an integral part of a people. Granted that for particular purposes it is appropriate to restrict the concept of capital that one uses and granted also that the particular restriction imposed by the notion of the "market place" is altogether too narrow for many of the purposes to which I am addressing myself, Marshall's view of capital, nevertheless, could have been given a much broader interpretation than it has received. Obviously, labor is in touch with the market place as wages and salaries are presently determined. These wages and salaries represent income streams, and, like the income streams from property, they too may be discounted, and appropriate capital values may be imputed to each of them. Furthermore, investments in man, like investments in property, are ways of establishing additional income streams. Inasmuch as it is possible to observe their rates of return, these investments in man would appear to fall within the scope of Marshall's realistic economics. It is of course far from easy to estimate these rates from such statistics as are now being collected; useful statistics, however, could be had if we were to set our hand to the task.

I would be remiss if I did not acknowledge the fact that, in spite of the restriction that Marshall placed on his concept of capital, his writings are studded with gems of wisdom on the economic importance of adequate food, housing, and health and of developing the skills of workers. He, also, stressed the value of scientific training and the diffusion of scientific knowledge and looked upon education as a "national investment" (See Marshall, Book IV:216-217).

[3] There is, of course, a fundamental difference between how Marxists and liberals use the word "change". The change in society which Marxist envision is a radical, total restructuring of society; whereas liberals conceptualize change as evolutionary, piece-meal, and reformist.

CHAPTER II

HUMAN CAPITAL THEORY: THE RELATIONSHIP BETWEEN EDUCATION, OCCUPATION, AND LABOR INCOME FROM THE PERSPECTIVE OF ECONOMICS

A. Introduction

The purpose of this chapter is 1) to trace the development of human capital theory; and 2) to identify its basic assumptions (including the nature of the relationship between the education of workers and the occupational structure of modern industrialized capitalist societies). The influence of this theory on educational policies in Canada as well as the United States, Western Europe, and the Third World will also be discussed, but in chapter III. Finally, in chapter VI, a comprehensive critique of human capital theory will expose some of its major theoretical and empirical shortcomings.

Human capital theory was launched into international limelight at the seventy-third annual meeting of the American Economic Association in St. Louis by Theodore W. Schultz in his presidential address on December 28, 1960. It is a theory formulated and promoted primarily by neo-classical economists to explain the relationship between education, occupation, and labor income on the individual (micro-) level; and between education and economic growth/development on the societal (macro-) level. Thus, Schultz has drawn together two very different areas of neo-classical economics in his formulation of human capital theory. One strand is that of micro-economic investment theory which focuses on individual decision-making. The other is macro-economics, focusing on economic theories of growth.

Although one of the original aims of human capital theory was to provide a "rational" framework for policy decisions regarding efficient investment in the American educational system (which has expanded at a phenomenal rate since World War II), it achieved almost immediate acceptance and hegemony throughout the world as the model which international agencies, governments, and universities would use in planning and implementing national and international programs for social and economic development.

In a nutshell, human capital theory states that increased investment in human capital increases individual productivity and income and lays the technical base for the type of labor force necessary for economic growth in modern industrialized capitalist societies. In Schultz's (1963B:x-xi) words:

> ...people enhance their capabilities as producers and as consumers by investing in themselves and... schooling is the largest investment in human capital. This proposition implies that most of the economic capabilities of people are not given at birth or at the time when children enter upon their schooling... they these acquired capabilities ... alter the structure of wages and salaries and the amount of earnings from work relative to the amount of income from property. There are long-standing puzzles about economic growth, changes in the structure of wages and salaries, and changes in the personal distribution of income that can be substantially resolved by taking account of investment in human capital.

Basic to the development of human capital theory is the concept of all-inclusive capital, discussed in depth by Harry G. Johnson in The Residual Factor and Economic Growth (OECD, 1964Bb). According to Schultz (1968A:278),

> (t)he logical basis of an all-inclusive concept of capital, which includes human capital, was established by Irving Fisher (1896, 1906). This concept treats all sources of income streams as forms of capital. These include not only such material forms as natural resources and reproducible producer and consumer goods and commodities but also such human forms as the inherited and acquired abilities of producers and consumers.

Fisher's definition of capital is "...simply any stock existing at a given instant that yields a stream of services over time, all flows of 'income' therefore being the product of some item of 'capital' whose value is calculated by capitalizing the income flow at an appropriate discount rate" (Blaug, 1970Bb:5).

The concept of all-inclusive capital makes possible a generalized capital accumulation approach to economic development. The key idea here is that labor is treated as a produced means of production (Bowles and Gintis, 1975Ab:74). This means that skilled labor is really capital, i.e., capable of generating a stream of income. Human capital is human, according to Schultz (1971B:48) because "...it is embodied in man, and it is capital because it is a source of future satisfactions, or of future earnings, or of both."

The idea of education as an investment in man's productive capabilities, as capital, goes back at least to Adam Smith (1776, 1965B, Bk 1, chpt. 10, pt. 1), who stated that

> (w)hen any expensive machine is erected, the extraordinary work to be performed by it before it is worn out, it must be expected, will replace the capital laid out upon it, with at least the ordinary profits. A man educated at the expense of much labour and time to any of those employments which require extraordinary dexterity and skill, may be compared to one of those expensive machines. The work which he learns to perform, it must be expected, over and above the usual wages of common labour, will replace him the whole expense of his education, with at least the ordinary profits of an equally valuable capital. It must do this too in a reasonable time, regard being had to the very uncertain duration of human life, in the same manner as the more certain duration of the machine. The difference between the wages of skilled labour and those of common labour is founded upon this principle.

Therefore, according to human capital economists, only unskilled labor would remain in the analytical category "Labor". Skilled labor becomes part of the analytical category "Capital". However, because human capital theorists believe that unskilled occupations are being eliminated from the occupational structure in advanced industrialized capitalist societies by the inevitable process of mechanization and automation, we are left with only skilled occupations. Hence, unskilled labor or "Labor" disappears and we are left with physical and human (skilled labor) "Capital". Thus, the distinction between labor and capital is eliminated and class is transcended.

Most economists view capital accumulation as the key requirement for economic growth. Human capital theory shifted the traditional emphasis on physical capital accumulation to a form of capital accumulation which had been relatively ignored during the first half of the 20th century -- human capital.

If Adam Smith recognized the importance of education as an investment in labor productivity as far back as 1776, why has the idea been more or less neglected until Schultz resurrected it with his formulation of human capital theory in 1960? Economic historians generally credit Alfred Marshall with the demise of the concept of human capital. In his Principles of Economics (1890, 1961B), Marshall agreed with Adam Smith that educated labor could be thought of as expensive machinery, but he said the concept of human capital is unrealistic and impractical, and that the acquired skills and knowledge of workers could not be included in the measurement of wealth or capital of a country (Blaug, 1970Bb:2). In response to Fisher's (1906B) call for an all-inclusive concept of capital, Marshall (1890, 1961B) responded that

> (r)egarded from the abstract and mathematical point of view, his position is incontestable. But he seems to take too little account of the necessity for keeping realistic discussions in touch with the language of the market-place... we are seeking a definition that will keep realistic economics in touch with the market place...

Thus, because Marshall felt that it would be "out of touch with the market-place"[1] to treat human beings as a form of capital,"(i)nvestment in human beings has accordingly seldom been incorporated in the formal core of economics... and has fostered the retention of the classical notion of labor as a capacity to do manual work requiring little knowledge and skill..." (Schultz, 1961Ac:3).

There are other reasons why economists have shied away from the idea of viewing human beings as a form of capital. The primary one is that modern economies lack capital markets for labor and, as Blaug (1970Bb:7) points out,

> ...that the abolition of slavery necessarily implies that human beings are not produced means of production in the full sense that capital goods are. After all, capital markets are simply markets which convert income into capital and capital into income, that is, convert the promise of a flow of future payments into a single advance payment and vice versa. Because non-slave society prohibits people from contracting to deliver their future services, "free" people must keep their human wealth tied up in the form of labour services and cannot hedge against unforeseen changes in the future demand for their services.

Schultz (1961Ac:2) points out some moral and philosophical objections to viewing human beings as wealth or capital:

> Free men are first and foremost the end to be served by economic endeavor; they are not property or marketable assets...Our values and beliefs inhibit us from looking upon human beings as capital

> goods, except in slavery, and this we abhor... Hence, to treat human beings as wealth that can be augmented by investment runs counter to deeply held values. It seems to reduce man once again to a mere material component, to something akin to property...J.S. Mill at one time insisted that the people of a country should not be looked upon as wealth because wealth existed only for the sake of people.

Schultz and other human capital theorists maintain a minority position in neo-classical economics with regard to their concept of capital. The overwhelming majority of neo-classical economists view capital as material capital only; inherited and acquired capabilities of people are not included in this view. On the other hand, Keynesian economists view education strictly as consumption.

> Thus, national income accounting, which is an outgrowth of Keynesian macroeconomics, treats educational expenditures as final consumption, without making any allowance for the fact that the education acquired by the labor force depreciates over time and gradually becomes obsolete in much the same way as machines with which the labour force is equipped. That is to say, we inconsistently include in the net national product or national income the net additions to the stock of physical capital but not the gross additions to the stock of human capital, although both types of capital are used up in the process of contributing to output (Blaug, 1970Bb:18).

Keynesian economists do not view education as having any role to play in growth. Blaug (1970Bb:18) states that "(u)nfortunately, the Keynesian view of education as consumption logically inhibits any consideration of the contribution of education to economic growth." Consequently, human capital theorists assert that neo-classical economics, and Keynesian economics in particular, has overemphasized physical capital as the mainspring of economic growth (Ibid.).

Human capital theory marks an advance in neo-classical economic theory for two other reasons. As Bowles and Gintis (1975Ab:74) point out, human capital theory "...rejects the simplistic assumption of homogeneous labor and centers attention on the differentiation of the labor force" as well as bringing "...basic social intitutions [such as schooling and the family], previously relegated to the purely cultural and superstructural realm, into the realm of economic analysis."

B. Macro-Level: National Growth/Development Approach

The growth of human capital theory literature can be traced back to the works of several economists, including: Abramovitz, 1956A; Becker, 1962A, 1964B, 1966A, 1967B; Bowman, 1962A, 1964A; Denison, 1962B, 1967B, 1974B; Fabricant, 1959; Kendrick, 1961; Mynt, 1965B; Solow, 1957; Schultz, 1958A, 1959A, 1960A, 1961A, 1962A, 1963B; Vaizey, 1958, 1961; and Bertram, 1966B. Some are empirical studies focusing on the micro-level, others focus on the macro-level. In a number of empirical studies, economists have investigated the sources of modern economic growth in the United States and grappled with the problem of measuring them. This is referred to as the national growth/development approach. It represents the macro-level strand of human capital theory.

Basically, the national growth/development approach is concerned with accounting for all the sources of economic growth on a national scale. Consequently, empirical studies into the sources of past growth have been conducted and projections made on that basis for future probable growth rates. However, when calculations are made regarding the proportion of growth in GNP attributable to conventional inputs of capital and labor, a large residual is left unexplained. It was the discovery of this residual which eventually led to the systematic focus on the role of differentiated labor skills (e.g., human capital) in economic growth.

It was Moses Abramovitz who announced the "residual" with the publication of Resources and Output Trends in the United States Since 1879 in 1956 (Schultz, 1972A:17). As Schultz (Ibid.) remarked,

> (t)here it was, [the residual] yet by all the canons of economics, it could not be accepted, except as a measure of our ignorance. Why was the rate of output increase so much higher than that of the inputs? What had been ignored? No wonder then that this residual became the take-off for so much research to discover the sources of the unexplained increases in output.

This sort of research stimulated interest in the development of a comprehensive human capital theory in order to explain, among many other puzzling economic phenomena, this "residual" or this difference between the rate of increase in output and the rate of increase in input (physical capital and labor). The idea that improvement in the quality of inputs, especially labor, could be responsible for at least part of the increase in output prompted a flurry of research into the elements thought responsible -- namely, health and education.

The publication of Denison's work in 1962 ushered in a debate which is still raging in the literature. That debate centers on the "residual" and whether or not it can be explained. Edward F. Denison is generally credited with having made the first attempt to explain the residual (Schultz, 1971B:136).

Denison's study (1962B) is actually an implicit estimate of the aggregate production function of the American economy for the period 1910-1960 as well as an attempt to explain the residual (Blaug, 1970Bb:89).

The model used is a linear aggregate production function of the Cobb-Douglas type and neutrality of technical progress is assumed. He uses the principle of marginal productivity (Ibid.:97). Denison also assumes that

> (i)n the productive sphere, substitutions are possible between various categories of labor and the professional classes; and competition exists between employers so that the wage paid to an employee equals his marginal productivity. Entry into the idependent professions is free, and since they operate in a competitive society the renumeration of persons who are not wage-earners also equals their marginal productivity (OECD, 1964Bb:62).

Other assumptions include labor market competition and substitution elasticities as well as constant returns to scale (Ibid.:69).

According to Denison (1962B), 23% of the growth in real national income in the United States between 1929 and 1957 was due to increases in the length of formal education[2] of the labor force, measured in average years of schooling. Another 20% was due to increases in "technological and managerial knowledge", whereas the increase in inputs of physical capital accounted for about 15% of the increase in real national income for the same period (Schultz, 1971B:136). The remaining 8% was attributable to increasing returns to scale (Phelps, 1962A:509). Denison concluded that improvements in skills of workers was due to increased education (Schultz, 1961Ac; Denison, 1965A). Except for increases of the labor force itself, this makes education the largest single source of growth in the United States for the period 1930-1960 (Blaug, 1970Bb:89). Denison divided his study into two parts, one for the period 1900-1929 and the other for the period 1930-1957. It should be noted that in his 1962 study, Denison included only formal schooling and measured it only quantitatively (days and years spent in school). Various forms of adult education and on-the-job training were not measured or included, "...for lack of information. I am not even sure this increased or decreased, per worker, during the periods..." (Denison, 1962A:127).

Apparently, Denison attributed the residual to education rather arbitrarily on the basis of the fact that persons with higher levels of education received higher incomes. Denison assumed that higher wages reflect greater productivity (Collins, 1971A:1005). For example, Denison writes that "...earnings differences between groups of males of similar age, classified by education, are taken to represent differences in their contributions to production or quality" (Denison, 1962A:125). Denison (1962B:68) states that

> (r)eliance, for broad groups, on the marginal productivity explanation of the distribution of income permits us to treat differentials in average earnings among these groups as a measure of differentials in the average contribution to production made by the individuals comprising them.

Table 2.1 includes Tables 8 and 9 from Denison's 1962 study, reporting his figures for the contribution of education to increased worker productivity and income. Denison (1962B:71) has also remarked that

> (i)t is reasonable to suppose that increasing the number of days spent in school per year raises a man's contribution to production just as much as will an equal percentage increase in the number of years spent in school.

Denison, however, did not attribute all the income differential between persons with different levels of education to the difference in amount of education. He attributed 2/5 of the income differentials between persons with more schooling to natural ability and family

TABLE 2.1: THE EFFECT OF EDUCATION ON LABOR INCOME OF WORKERS

Table 8

Years of School Completed	(1) Mean Income as % of Mean Income of Eighth Grade Graduates	(2) Mean Income Differentials Used to Represent Effect of Education (% of Income of Eighth Grade Graduates)
None	50	70
Elementary School:		
1 to 4 years	65	79
5 to 7 years	80	88
8 years	100	100
High School:		
1 to 3 years	115	109
4 years	140	124
College:		
1 to 3 years	165	139
4 years or more	235	181

Source: Denison, 1962B:68.

Table 9

Calculation of the Effect of Longer Education on Labor Earnings Per Man[1]

Period	Per Cent Change					Annual Rate of Change (per cent)
	(1) *Labor* output per man considering only years of education	(2) Average number of years of school completed	(3) Average number of days of school attended per year of school completed	(4) Average total number of days of school attended	(5) *Labor* output per man based on total days of education	(6) *Labor* output per man based on total days of education
1910 to 1920	2.7	9.0	6.7	16.3	4.9	0.48
1920 to 1930	3.3	8.9	8.8	18.4	6.9	0.67
1930 to 1940	4.1	10.2	10.8	22.0	8.8	0.85
1940 to 1950	4.4	10.4	10.9	22.4	10.4	1.00
1950 to 1960	5.1	9.8	9.3	20.0	10.3	0.99
1960 to 1970	4.7	6.8	8.1	17.6	9.4	0.90
1970 to 1980	4.8	8.2	7.0	15.7	9.1	0.85
1910 to 1930	6.1	18.6	16.1	37.8	12.1	0.57
1930 to 1960	14.2	33.6	34.2	79.3	32.6	0.94
1960 to 1980	9.7	17.6	15.6	36.0	19.4	0.89
1910 to 1960	21.2	58.5	55.8	147.0	48.6	0.79
1910 to 1980	32.9	86.5	80.1	236.0	77.4	0.82

---

[1] Based on males 25 years of age or older.

Source: Denison, 1962B:72.

background. Therefore, 3/5 of the income differentials between workers of similar age was the result of differences in level of schooling. In Denison's (1962B:68) own words,

> ...the difference in education received and the associated loss of experience are not the only characteristics that distinguish the groups of workers of similar age so that the differences in average earnings cannot be used without adjustment to measure earnings differences that are due to differences in education and associated loss of experience -- the information that our investigation requires.
>
> Clearly, the reported income differentials overstate these differences. Individuals of greater ability are more likely to continue their education. Wolfle states that most of those who do not enter high school come from the lower half of the ability distribution. The average score on the Army General Classification Test of those who enter high school is 105, of those who graduate from high school 110, of those who enter college 115, of those who graduate from college 121, and of those who receive the Ph.D. degree 130; however, there is a wide dispersion at each level. Among individuals with similar AGCT scores, those with better school grades are more likely to continue their schooling. Insofar as this may reflect greater energy, application or motivation that carries over into later life, the income differentials shown reflect these attributes as well as differences in length of education as such.

Since Denison first reported that approximately one-third of the gross earnings differentials between college and high school graduates disappear when one standardizes for differences in father's occupation, rank in high school class, and I.Q. scores, Becker (1964B:80-88) and Weisbrod and Karpoff (1968) have independently confirmed these results (Blaug, 1970Bb:50).

Then in 1964, OECD published Denison's essay, "Measuring the Contribution of Education (and the Residual) to Economic Growth" (OECD, 1964Bb). The focus of this paper is upon what factors have been the sources of past growth in the United States. It is an outgrowth of his earlier study (1962B). Denison distinguishes between the contribution of increases in factor inputs and increases in output per unit of input. His results are virtually the same as in the earlier study.

> My conclusion...is that, from 1929 to 1957, the increase in education raised the average quality of the labor force at an average annual rate of 0.93 per cent a year. What this rate implies is that an increase of 80 per cent in the average amount of schooling raised the average quality of labor by 30 per cent (OECD, 1964Bb:16).

Denison (OECD, 1964Bb:36) explains the contribution of education to economic growth in the following quotation:

> It is important to understand why improvements in the quality of the labor force is estimated to have made such a large contribution to the growth rate. Essentially it is the combination of two facts. First, improving the quality of labor, education affected a productive resource that, on the average from 1929 to 1957, represented 73 per cent of total input of all factors of production (labor, land, capital, and entrepreneurship, or whatever classification one prefers). This is referred from the labor share of national income. Second, the increase in the amount of education was very large. The amount of education per worker (in days) was increasing almost 2 per cent a year and I estimate that this was raising the quality of labor by an amount equivalent to an increase in its quantity of almost 1 per cent a year.
>
> It is these two facts which explain why the increase in education per worker is estimated to have increased real national income per person employed by 0.67 percentage points while, for example, the increase in the quantity of capital per person employed contributed only 0.15 percentage points. Capital represented (at most) only 22.5 per cent of total factor inputs, and the input of capital per person employed increased only 0.56 per cent a year.

> The main specific assumption underlying my estimates of the contribution of additional education to growth through its effect on the quality of labor is, as stressed, that differentials in labor earnings due to differences in education equal 60 per cent of observed differentials in money income among adult males of the same age classified by years of education. The effect of any alternative assumption can be easily approximated by multiplying my results by the ratio of the desired percentage to 60 per cent. . . .

Thus, Denison is the first economist to measure the economic value of education in respect to its contribution to national economic growth. The measure used is actually earnings differentials attributable to education. Denison is the only economist, prior to 1970 at least, to assign a cardinal number to the contribution of education to national income (Blaug, 1970Bb:89).

Denison hypothesized that education could contribute to economic growth in two distinct ways. Firstly, increasing the educational level of workers would raise the quality of the labor force (inclusive of all occupations), and

> (t)his may be presumed to increase labor productivity, independently of any tendency for a large number of educated people to speed the enlargement of the society's stock of knowledge relevant to production

and

> (s)econd(ly), an upgrading of the educational background of the population may accelerate the rate at which society's stock of knowledge itself advances (OECD, 1964Bb:22).

Denison takes great pain to distinguish conceptually and operationally between **increases** in the education of the labor force and "advances in knowledge".

> It is essential to distinguish between: (a) society's stock of knowledge relevant to production, which (along with other conditions) governs the output obtained with given inputs; and (b) the quantity and quality of inputs (including the education of the labor force) that govern the output obtained with a given stock of knowledge...Increases in output resulting from advances in society's stock of knowledge are credited in my classification to the growth source, "advances of knowledge" (Denison, 1967B:79).

Denison's category of "advances in knowledge" includes advances in technological knowledge as well as managerial and organizational knowledge. He assumes that advances in technological knowledge are are about equally as important as advances in managerial and organizational knowledge. In contrast, other economists tend to stress technological knowledge over managerial and organizational knowledge. Denison includes both of these categories of knowledge in one measure, which he labels "advances in knowledge" (OECD, 1964Bb:54).

In 1967, Denison published another major work along the same lines as the 1962 study of the American economy. It was a comparison of growth rates of nine Western European and North American countries. The study uses a framework very similar to that employed in the 1962 one. Denison compared and attempted to explain the differences in growth rates of the following countries: Belgium, Denmark, France, Germany, Italy, the Netherlands, Norway, the United Kingdom, and the United States. The time period used is 1950 to 1962, broken into two sub-periods at 1955.

The results of the 1967 study are not as clear-cut as of the previous one (1962). In Denison's (1967B:78) own words, "(e)ducation does not help to explain why growth rates in Europe (1950 to 1962) have been higher than in the United States, but on the contrary, adds to the difference that must be explained by other sources" (emphasis added). This conclusion is rather curious since Denison expected to get similar results to his American study. He did, however, find that per person employed, "...education does help to explain the differences between Europe and the United States in the 1960 levels of national income..." (Ibid.).

Among the results of Denison's 1967 study of these nine Western countries was the fact that between 1950 and 1962, education "...contributed one-half a percentage point to the growth rate of national income" in the United States and "...raised the average quality of the American labor force by 9 percent (or 0.7 per cent a year)..." Denison (1967B:78). However, in Northwest Europe, the contribution of education to improvement in the quality of the labor force was only half as great as in the United States, "...and the increase in actual amount of education was proportionately even less" (Ibid.).

The contribution of education to national growth varied widely from country to country. For instance, education was found to contribute 13 per cent of the annual growth rate in the United Kingdom but only 1.4 per cent in Germany. Despite this, Britain's growth rate has been slow relative to the rest of Europe.

Differences in the quality of full-time schooling between the countries was not taken into account because it would be difficult, if not impossible, to measure. Denison concluded that other factors were probably more important than education in explaining growth rates in Europe. One probable factor is the "...national differences in the intensity of work..." (Blaug, 1970Bb:98).

Then, in 1974, Denison published another study, Accounting for United States Economic Growth, 1929-1969. This was motivated, in part, by a desire to explain the rapidly escalating growth rate experienced in the United States during the 1960's. Denison reports that his estimating procedures were greatly improved by better statistical implementation of the approach used in his earlier studies and that he had access to greater frequency of more detailed data every year from 1947 to 1969 (Denison, 1974B:2). He also changed the base year for prices from 1954 to 1958. **Denison's** (Ibid.:vii) conclusions included

> changes in seven categories were chiefly responsible for long-term growth and for variations in the growth rate: the number of employed persons and their demographic composition; working hours, including the proportion of part-time workers; the education of employed persons; the size of the capital stock; the state of knowledge; the proportion of labor allocated to inefficient uses; the size of markets; and the strength and pattern of short-term demand pressures. Advances in knowledge were the biggest single source of growth. As in Denison's previous studies, lengthier education of the labor force appears as a major source of growth in the United States, especially in the growth of output per worker. (Emphasis added.)

The 1974 study bears out the basic thesis of the earlier studies conducted by Denison, that is that education of workers is still one of the most, if not the most, important source of growth in the United States. Increasing human capital on a national level in the form of increasing years of school attendance has a pay-off to the nation (in the form of increased growth rates) and to the individual (in the form of higher monetary wage income).

Extending the school leaving age and actively encouraging people to pursue more and more education is viewed by Denison, and human capital theorists in general, as something desirable. Thus, policy formation and influencing policy implementation is an important component of their work. (Denison spent about half of his 1962 study discussing possible strategies for increasing the United States' growth rate in the future.) Results of the 1974 study are reported in Table 2.2, which reports Denison's Tables S-1, S-2, and S-3 comparing the results of the 1974 study with the results of the 1967 study of nine Western countries and the results of the 1962 study. Of interest to us is the change in the percentage point contribution of education to national growth. There is some difference between the three studies, the greatest being the decline from 0.67 reported in the 1962 study to the 0.40 reported in the 1974 study. Both figures refer to the period 1929-1957 in the United States. The difference between the contribution of education to the growth rate in percentage points reported in the 1967 study (0.49) and that of the 1974 study (0.40) is insignificant. This, however, refers to the 1950-1962 period.

Contribution of Education to Growth Rates in the U.S., 1929-1957
(in percentage points)

1974 Study	1962 Study
0.40	0.67

Contribution of Education to Growth Rates in the U.S., 1950-1962
(in percentage points)

1974 Study	1967 Study
0.42	0.49

Source: Denison, 1974B:344,345,346.

There is actually very little difference in these figures because, as Denison (1974B:347) points out, the drop is a result

TABLE 2.2: SOURCES OF GROWTH IN THE U.S., 1929-57 and 1950-62

Table S-1. Sources of Growth of Total Actual National Income, 1950–62 and 1929–57

Contributions to growth rate in percentage points

	1950–62	*1929–57*
National income	3.39	3.02
Total factor input	1.85	1.68
Labor	1.11	1.32
Employment	0.89	1.03
Hours	−0.19	−0.23
Average hours	−0.34	−0.58
Efficiency offset	0.05	0.26
Intergroup shift offset	0.10	0.09
Age-sex composition	−0.03	0.01
Education	0.42	0.40
Unallocated	0.02	0.11
Capital	0.74	0.36
Inventories	0.10	0.08
Nonresidential structures and equipment	0.31	0.13
Dwellings	0.28	0.14
International assets	0.05	0.01
Land	0.00	0.00
Output per unit of input	1.54	1.34
Advances in knowledge and n.e.c.[a]	1.15	0.80
Improved resource allocation	0.32	0.30
Farm	0.27	0.28
Nonfarm self-employment	0.05	0.02
Dwellings occupancy ratio	−0.02	0.01
Economies of scale	0.38	0.33
Irregular factors	−0.29	−0.10
Weather in farming	−0.02	−0.01
Labor disputes	0.00	0.00
Intensity of demand	−0.27	−0.09

Source: Calculated in the same way as Table 9-4, columns 1, 2, and 3.

a. n.e.c. Not elsewhere classified.

Source: Denison, 1974B:344.

Table S-2. Present and Previous Estimates of Sources of Growth of Total Actual National Income, 1950–62

Contributions to growth rate in percentage points

	From present study	*From* Why Growth Rates Differ
National income	3.39	3.32
Total factor input[a]	1.83	1.95
Labor	1.11	1.12
Employment	0.89	0.90
Hours	−0.19	−0.17
Other	0.41	0.39
Age-sex composition	−0.03	−0.10
Education	0.42	0.49
Unallocated	0.02	0.00
Capital and dwellings occupancy ratio	0.72	0.83
Inventories	0.10	0.10
Nonresidential structures and equipment	0.31	0.43
Dwellings and occupancy ratio	0.26	0.25
Dwellings	0.28	n.a.
Occupancy ratio	−0.02	n.a.
International assets	0.05	0.05
Land	0.00	0.00
Output per unit of input[a]	1.56	1.37
Advances in knowledge and n.e.c.[b]	1.15	0.76
Improved resource allocation	0.32	0.29
Farm	0.27	0.25
Nonfarm self-employment	0.05	0.04
Reduction of international trade barriers	0.00	0.00
Economies of scale	0.38	0.36
Irregular factors	−0.29	−0.04
Weather in farming	−0.02	0.00
Labor disputes	0.00	0.00
Intensity of demand	−0.27	−0.04

Sources: Table S-1 and *Why Growth Rates Differ*, p. 298, Table 21-1.

n.a. Not available.

a. For comparability, "dwellings occupancy ratio" is classified in total factor input in this table.

b. n.e.c. Not elsewhere classified.

Source: Denison, 1974B:345.

Table S-3. Present and Previous Estimates of Sources of Growth of Total Actual National Income, 1929–57

Contributions to growth rate in percentage points

	From present study	*From* The Sources of Economic Growth
National income	3.02	2.93
Total factor input	1.68	2.00
Labor	1.32	1.57
Employment	1.03	1.00
Hours	−0.23	−0.20
Age-sex composition	0.01	−0.01
Education	0.40	0.67
Increased experience and better utilization of women workers	0.00	0.11
Unallocated	0.11	0.00
Capital	0.36	0.43
Inventories	0.08	0.08
Nonresidential structures and equipment	0.13	0.28[a]
Dwellings	0.14	0.05
International assets	0.01	0.02
Land	0.00	0.00
Output per unit of input	1.34	0.93
Advances in knowledge and n.e.c.[b]	0.80	0.59[c]
Restrictions against optimum use of resources	n.a.	−0.07
Improved resource allocation	0.30	0.07
Farm	0.28	0.07[d]
Nonfarm self-employment	0.02	0.00
Dwellings occupancy ratio	0.01	n.a.
Economies of scale	0.33	0.34
Irregular factors	−0.10	0.00
Weather in farming	−0.01	0.00
Labor disputes	0.00	0.00
Intensity of demand	−0.09	0.00

Sources: Table S-1 and *The Sources of Economic Growth*, p. 266, Table 32.

n.a. Not available.

a. Includes farm dwellings.

b. n.e.c. Not elsewhere classified.

c. Includes "change in lag in application of knowledge," estimated at 0.01.

d. Includes "reduced waste of labor in agriculture" and "industry shift from agriculture."

Source: Denison, 1974B:346.

"...mainly from a reduction in the allowance for the number of days attended per school year and a reduction in the estimate of bias in Census data."

Another change of interest to us is the significant increase in the estimate for the contribution of advances in knowledge and n.e.c. (not elsewhere classified) reported in the 1974 study. It rose to 0.80 percentage points from the 0.59 reported in the 1962 study for the period 1929-1957. For the 1950-1962 period, the estimate rose from 0.76 in the 1967 study to 1.15 in the 1974 study. Denison reports that errors which were discovered in the 1967 study resulted in an underestimation of the estimates for advances in knowledge and n.e.c. (which, in any case was obtained as a residual in both studies). Therefore, the 1974 study revised this particular estimate upwards 0.23 percentage points "...for estimating the effects of fluctuations in the intensity of demand, 0.12 points by the revised data for nonresidential structures and equipment, and 0.07 points by the upward revision of the growth rate itself" (Denison, 1974B:345).

In fact, the total labor contribution to national economic growth in the United States for the 1929-1957 period was dropped 0.25 percentage points from 1.57 percentage points reported in the 1962 study to 1.32 percentage points reported in the 1974 study. This particular drop seems to be primarily a result of the reduction of the education estimate; a more minor component of the reduction is elimination of an estimate for "increased experience and better utilization of women workers" which proved to be of trivial size (Denison, 1974B:347).

For the 1950-1962 period, however, the estimates reported for total labor contribution to growth in the United States were nearly identical in the 1967 and the 1974 studies (1.12 and 1.11 respectively).

Since the mid-1960's, several economists have applied Denison's model to other national studies (Bertram, 1966-Canada; Lithwick, et. al., 1967-Canada; Bowles, 1969-Greece; Selowsky, 1967-Mexico, Chile, India; Psacharopoulos, 1969-Hawaii; Williamson, 1969-Philippines; Bergson, 1968-U.S.S.R.)(See Blaug, 1970Bb:98).

Gordon W. Bertram (1966B), in a study prepared for the Economic Council of Canada, estimated the contribution which education made to economic development (growth) in Canada between 1911 and 1961. For comparison purposes, he calculated estimates for the period 1929-1957 and compared them with Denison's (1962B) estimates for the American economy for the same period.

During the 1929-1957 period, the estimates for Canada are substantially lower than those Denison reported for the United States. Bertram's estimates indicate that education made a much smaller contribution to economic growth and worker productivity in Canada than it did in the United States for this period. The reason for this, according to Bertram, is because Canada's investment in education was lower than the American investment in education.

Bertram used Denison's model for the study. Bertram's study, like Denison's, was confined to male workers, but Bertram only included workers aged 25-64 years old, whereas Denison included all male workers 25 years old and older. Education is measured solely in terms of years of schooling, that is purely quantitatively. Adult education and various forms of on-the-job training were not included. Bertram employed Denison's assumption that only 3/5 of the income differentials between workers of the same age category is due to differences in education.

The remaining 2/5 is due to natural ability and family background.

Bertram (1966B:61-62) reports that

> (a)ccumulating evidence and analysis point more and more to education as a pervasive and basic element contributing to the real earnings potential of people, and therefore also of a whole economy or society. Past improvements in education have raised this potential considerably by increasing the quality and skills of the labour force. Estimates have shown that better education appears to have raised labour earnings per man by about 30 per cent from 1911 to 1961 in Canada, and that this has contributed almost one quarter to the rise in output growth per employed person.

Furthermore, the "(a)verage income per man in the male labour force 25-64 years of age rose some 12 per cent due to improved education" for the period (1911-1961) (Ibid.:50).

Bertram (1966B:55) measures labor productivity by worker income (wages and salaries), as indicated in the statement that

> ...labor productivity (income) rose by 0.52 per cent per year over this period (1911-1961) as a result of improved education. Consequently, total productivity per man rose by 0.40 per cent per annum as a result of improved education (76 per cent of 0.52). Educational improvements thus accounted for almost one quarter of the rise in productivity per person employed from 1911-1961.[3]

For the period 1929-1957, improvements in education contributed some 20 per cent to productivity per employed person in Canada — which is less than half the corresponding figure (42 per cent) for the United States reported by Denison (Ibid.).

The difference between the estimates of the contribution of education to growth for Canada and the United States are significant. The fact that Denison and Bertram place great importance on education as a source (factor responsible for) growth further emphasizes the "backwardness" of Canada in respect to education of the labor force.

> The calculation of the contribution of education to the growth rate of total national income [in Canada] involves a method similar to that used in the...contribution of education to the growth in output per employed person. Improvements in the quality of labour input are considered equivalent to an increase in the quantity of labour input and the rate of growth in real national income in Canada for the period 1911-1961 and 1929-1957 are again approximated by the rate of growth in GNP (Bertram, 1966B:55).

Bertram (1966B:56) found the contribution of education as accounting for 12 per cent of the growth in national income for the period 1911-1961, whereas it accounted for 11.4 per cent for the period 1929-1957. The contribution of education to growth of national income for the period 1929-1957 was estimated at 23 per cent by Denison for the United States -- approximately double the Canadian figure (Ibid.).

Another significant difference between Canada and the United States is the fact that per capita income in Canada "...has remained persistently about one-quarter below that of the United States since the turn of the century" (Bertram, 1966B:57). According to Bertram (Ibid.) this is due to "...differences in quality and quantity of inputs and the efficiency with which they are used in the Canadian economy."

> If the gap in real income per member of the labour force between Canada and the United States is taken as 20 per cent in 1961, then the estimates made in this study concerning the relative differences in the educational attainment or quality of the labour force in the two countries indicate that the quality difference is a source of about a third of the 20 per cent difference (Bertram, 1966B:58).

Universal elementary education was strongly promoted in Canada from the late nineteenth century through to the First World War,

> (b)ut the record of the Canadian educational achievement seems to taper off by 1920. It appears as though the democratic spirit which had promoted universal elementary education in Canada failed to operate to the same extent in secondary education efforts, and education beyond the elementary school continued to be more the prerogative of an elite. The high schools were excellent, but their output was small. With a limited production of high school students, university education was even less available to large numbers who were potential university students.
>
> Thus, despite the fact that there has been a significant long-term rise in the educational attainments of the labour force, the extent of this rise has been considerably below that for the United States since the First World War. This has resulted in the emergence of a widening educational gap between the two countries... For example, by the beginning of the 1960's, the median year of schooling of the Canadian male labour force was about two years below that of the United States male labour force, at least for the age group 25-64 which constitutes the bulk of the existing labour force. This appears to reflect, in particular, the widening of the gap at the secondary and university level. In relation to the United States, Canada began to lose ground in its efforts to prepare high school students in the inter-war years, and university students in both the inter-war and the post-war years (Bertram, 1966B:61).

Bertram (1966B:61) remarked that "(e)ven under very favourable assumptions, it would require many years to eliminate the differences in the average levels of education between Canada and the United States." He ascribes about one-third of the income differences per man between the United States and Canada during the early 1960's to be due to lower Canadian educational attainments. The fact that the per cent increase in labor earnings per man for the 1911-1961 period in Canada is only one-half the increase in the United States "...reflect(s) the widening gap in the average level of schooling in terms of economic growth", according to Bertram (Ibid.:62).

Bertram (1966B) refers to a comparison of social and private rates of return to high school and university education in Canada (based on Podoluk's work) and in the United States (based on Becker's work). Becker (1964B:121) estimated the social rate of return on university education in the United States to be between 8 and 11 per cent per year, which falls within the range of rates of return on all business capital. For the private rate of return to university education in the United States, Becker (Ibid.:114) calculated a 12+ rate of return per year (adjusted for differential ability). Bertram (op. cit.:63) reports that

> (c)alculations for Canada have shown that private returns on the human investment in high school and university education are in the range of 15 to 20 per cent per year, with slightly higher rates for an investment in a university education than in a high school education (Podoluk, 1965B:61)... Canadian rates of return to education compare favourably, not only with those on alternative returns typically accruing from total capital investment in physical and financial assets, but also with the similar U.S. rates of return to education.[4]

Bertram, like Denison, is interested in influencing government policy. In that vein, Bertram (1966B:64) remarks that "...not only... [is] education a significant factor in raising productivity and living standards, but also that a relative increase in expenditures on education would contribute to an efficient allocation of resources." More bluntly,

> (t)he major policy implication is that increasing efforts in the area of education are a prerequisite not only for the maintenance or acceleration of productivity growth in Canada, but also for the narrowing of the existing differences in the absolute level of productivity, and therefore the living standard, between Canada and the U.S. (Ibid.).

C. Micro-Level: Investment Approach

Despite the results of empirical studies on the macro-economic level, Schultz himself feels very strongly that macro-economic theory has failed to provide adequate answers to many long-standing economic puzzles and paradoxes. Therefore, Schultz called for what he calls "an investment approach" based on micro-economics, and investment theory in particular, to resolve some of these problems and to provide theoretical and empirical advances. This investment approach would link the macro- to the micro-levels and provide a theoretical and empirical basis for pragmatic and rational decision-making and policy formation for investment choices on the individual as well as on the national levels. While the national growth/development approach, sometimes referred to as the national income approach, operates on the macro-economic level; the investment approach operates on the micro-economic level. According to Schultz (1961Ac), the investment approach, although its focus is on individual rates of return on investment in education, also enables one to estimate the social benefits of education by aggregation of data on individuals. Schultz believes that not only could this be done, but that it should be done.

Schultz is concerned with such things as individual decision-making and private rates of return to investment in education. In expressing the need for an investment approach to human capital formation (in addition to the national growth/development approach developed by Denison), Schultz (1968A:283) remarked that

> (w)hile this knowledge of the sources of economic growth (provided by Denison) is indeed useful..., it is not an approach to determining the underlying costs and returns to investment

> that produced the additional sources that account for this part of economic growth. The important matter of an optimum allocation of total net savings among investment opportunities is not a part of the aim of this national growth/development approach.

Schultz praised those economists who were already doing some work in this area and attempted to incorporate this branch of microeconomics (e.g., investment theory) into the corpus of human capital theory.

> I find it intuitively plausible that advances pertaining to this part will come largely from micro-analysis, mainly, in response to puzzles and paradoxes revealed by economic data, for example Telser's modification of specific human capital and its formation by firms in his search for the determinants of the differences in the rates of return in manufacturing. Thinking in terms of the activities of the household, it may prove especially rewarding in coping with human capital formation by the family to approach it as a part of the production activities of the household, and also, in getting at the satisfactions that it renders to the family in consumption. The differences in the motivation of students in their school work associated with the differences in job-market discrimination, following the approach of Welch, is another case in point (Schultz, 1970Ab:305-306).

Schultz (1970Ab:297) credits Gary S. Becker with the development of the theoretical analysis of investment in human capital (in Becker, 1962A). According to Schultz (1970Ab:305), Becker's work constitutes a major breakthrough:

> (c)onsider the original theoretical analysis of of investment in human capital by Becker. I think it is fair to say that he started with the aim of estimating the returns to college and high school education in the United States. In pursuing this aim, he discovered that the investment activities associated with education were akin to other investments in people and that all these activities had

> basic attributes in common for which received theory, tailored to investment in structures and equipment, required reformulation. Then, later in pursuing the many implications of earnings foregone, he discovered the problem that could be solved by a theory of the allocation of time.

Gary S. Becker set out to develop a theory of income distribution which would "...both articulate well with general economic theory and... would be useful in explaining differences among regions, countries and time periods" (Becker, 1966A:358). Becker believes that an analysis of investment in human capital would and does provide a basis for such a theory. As he points out himself, the distribution of personal income has long been of interest to economists, including Adam Smith; yet despite this historical interest and the plethora of empirical information which has accumulated, economists for the past generation have neglected the study of the distribution of personal income (Ibid.).

Becker set out in the early 1960's to provide a theory on the distribution of income which was based on an analysis of investment in human capital. In Becker's (1966A:369) own words,

> (t)he body of economic analysis desperately needed a reliable theory of the distribution of income...our approach seems to offer considerable promise of filling that need. In any case we hope to have demonstrated that a theory of income distribution need not be a patchwork of Pareto distributions, ability vectors, and the toss of a coin, but can wear clothing as neat as that worn by the theory of households and firms.

Becker's theory states that "(t)he total earnings of any person after he has finished investing in human capital can be said to equal the sum of the returns on his investments and the earnings from his 'original' human capital" (Becker, 1966A:359).

Like Denison, Becker measures investment in human capital solely by number of years of formal schooling. And also like Denison, Becker does not consider all the differential in earnings between workers of the same age category to be due to differences in education alone.

> Each person is assumed in effect to maximize his economic welfare by investing an appropriate amount in human capital, and the distribution of earnings is determined by the distribution of investments and their rates of return. These determinants are in turn related to various "institutional" factors which also play an important part in our theory: inheritance of property income, equality of opportunity, distribution of abilities, subsidies to education, and other human capital, etc. (Becker, 1966A:368).

Like the macro-level strand of human capital theory, the micro-level (investment approach) has as one of its basic assumptions the neo-classical principle of marginal productivity. This means that differences in earnings of workers (generally in the same age category) are assumed to reflect differences in their productivity. Becker utilizes this principle in his work; so does Schultz. "For human agents it is fairly straightforward to the extent that there is a linkage between what they contribute to production and what they earn in wages and salaries..." (Schultz, 1968Aa:283).

Human capital theory as Schultz formulates it is posted partly on the neo-classical idea that investment should flow into those sectors of the economy which have a high rate of return (because high rates of return indicate under-investment). Both individuals and society would benefit by such an investment. Conversely, a sector which yields low rates of return would be a sector which has been over-invested in. It would be considered wasteful for governments, as well as for corporate groups and individuals, to invest in a sector which yields a low rate of return. It would also be considered wasteful not to invest in a sector which yields a high rate of return. The ultimate aim of neo-classical investment economics is to equalize the rates of return in all sectors of the economy; presumabley, this would eliminate under- and over-investment in any one sector of the economy and maximize economic efficiency and equilibrium.

Schultz and other human capital economists advocate investment in human capital because it yields high rates of return to both the individual and society. "...(T)he quality of human effort can be greatly improved and its productivity enhanced...such investment in human capital accounts for most of the impressive rise in the real earnings per worker" (Schultz, 1971B:25). Schultz (Ibid.:35) states that "(i)nsofar as expenditures to enhance such capabilities also increase the value of productivity of human effort [labor] they will yield a positive rate of return."

The method employed by the investment approach is that of rate-of-return analysis. Rate-of-return analysis for investment in education distinguishes between two types of returns: private (or individual) rate of return and social rate of return. Individuals tend to be concerned with the former, whereas governments are more concerned with the latter.

The private rate of return to education[5] is the financial return in the form of increased monetary earnings which the individual gains as a result of investment in more education. The costs, both direct and indirect, to the individual and/or her/his family constitute the investment. The subsequent increase in earnings as a result of acquiring the additional education minus the investment costs constitute the return on the investment.

It is important to point out that the private rate of return to education in economic terms (monetary earnings) is not the same as the real or full private rate of return. Becker (1964B:121-122) points out that

> (f)ull or real returns and costs[6] would be the sum of monetary and psychic ones, and the real gain would depend on the relation between these real returns and costs. The psychic gain from college, like the monetary gain, probably differs considerably between the typical college and high school graduate. For presumably the former does and the latter does not go to college partly because of a difference in expected psychic gains...
>
> Quantitative estimates of psychic gains are never directly available and are usually computed residually as the difference between independent estimates of monetary and real gains. Unfortunately, independent estimates of the real gains to college graduates are not available.

There are some strong conceptual and statistical difficulties in

> ...estimating the private rate of return on education from income differentials between persons differing in education...Simply worded, the argument is that the true rate of return on education is grossly overestimated because persons differing in education also differ in many characteristics[7] that cause their incomes to differ systematically (Becker, 1964B:79).

This leads us to a discussion of how private returns to education are measured and calculated. There are divergent approaches to measuring the private returns. Basically, the difference between the approaches hinges on whether or not it is the "...measuring of lifetime incomes by levels of education..." or the "...rates of return on investment in education" which is being calculated (Podoluk, 1965B:54-65).

Schultz initially used the measure of lifetime earnings by levels of education approach. So did Herman Miller (1960A), whose data were used by Schultz. This approach has been abandoned by Schultz in favor of the other approach of estimating present value of income streams by discounting them at various interest rates. The switch was made because of a number of difficulties with the earlier approach.[8]

Because of the lifetime earnings by levels of education approach to the return on education has been largely abandoned, we shall focus on the private rate-of-return analysis as formulated by Gary S. Becker (1964B:37) who developed the theory and technique of deriving the rate of return, the amount invested, and the investment period from net earnings.[9]

Becker (1962A:49) states that "...the total amount invested in a generalized concept of human capital and its rate of return can be estimated from information on earnings alone." Therefore, Becker's theoretical and empirical work in human capital deals with all activities and characteristics which have the effect of raising earnings. Our focus, however, is on only one of these factors -- education. According to most human capital theorists, education is the single most important investment factor (at least in developed countries). Furthermore, what is really being referred to by the term education is formal schooling.

Becker utilizes the general economic belief that the incentive for investment is the expected rate of return, and that this is true whether one is investing in physical (material) capital or in human capital (people). Becker (1962A:37) views his own work as contributing to general economic theory in that "...an investment approach to human resources is a powerful and simple tool capable of explaining a wide range of phenomena, including much that has either been ignored or given ad hoc interpretations."

Belief that individuals do in fact maximize their investment opportunities in a similar fashion as individual firms is an inherent element of the investment approach to human capital, as it is to micro-economic analyses in general. "...(T)he amount invested in human capital results from optimizing behavior: each person is supposed in effect to invest an amount that maximizes his economic welfare" (Becker, 1966A:359).

Rational behavior, however, is not entirely necessary to come out with the same results. Becker (1976B:153-168) "...postulates impulsive or random behavior...and shows that, because of the constraint of scarcity, negatively inclined demand curves result from these assumptions as well as from rational behavior" (MacRae, Jr., 1978A:1255).

Thus, Becker has developed a micro-economic model to explain the profits on investment in human capital as measured by the rate of return individuals earn on

> ...a unit of human capital (given by the slope of its demand curve) adjusted for the "rate of interest" on investment opportunities (given the slope of its supply curve). In principle, every individual has a unique demand-supply function which accounts for observed differences in earnings and levels of human capital accumulation (Sawyer, 1978A:1266).

Individuals with lower supply curves or higher demand curves or both invest more than others. It is important also to understand that Becker (1966A:368) sees his approach as fitting into the mainstream of general neo-classical economic theory, unlike other approaches to the distribution of personal income; so that in addition to developing an investment approach to human capital formation, he has developed a theory of the distribution of income.

> ...(U)nlike most other approaches to income distribution, it does not consist mainly of mechanical curve fitting or ad hoc probability mechanisms, but rather relies fundamentally on maximizing behavior, the basic assumption of general economic theory. Each person is assumed in effect to maximize his economic welfare by investing an appropriate amount in human capital, and the distribution of earnings is determined by the distribution of investments and their rates of return. These determinants are in turn related to various "institutional" factors which also play an important part in our theory: inheritance of property income, equality of opportunity, distribution of abilities, subsidies to education, and other human capital, etc.

Furthermore, Becker (1966A:369) complains that "(t)he body of economic analysis desperately needs a reliable theory of the distribution of income."

Focusing on individual investment in education, Becker (1964B) calculates the private rate of return to college graduation "...as the internal rate, or rate of discount, that makes the series of differences between college and high school graduates sum to zero, where the costs of college (including foregone earnings) gives rise to negative differences" (Rees, 1965A:959).

Becker treats the costs of schooling as negative income during periods of school attendance.[10] The internal rate of return[11] is "that discount rate which yields a present value of zero for the net income streams derived from the additional education" (Podoluk, 1965B:60). Thus, the earnings differentials for college graduates are between those males with college graduation and those males who have completed high school. For male high school graduates, the earnings differentials are between the male high school graduates and males having completed five to eight years of elementary education.

What, then, is the private rate of return to investment in education? Becker (1964B:76), as already noted, relies primarily on the internal rate of return.[12] The rate of return to an average college entrant is 10 to 12 per cent per year; with a higher rate for urban, white, male college graduates, and a lower rate for non-whites, women, rural persons, and college drop-outs, and a variance within any particular subgroup according to ability (Ibid.).

The private rate of return for white, male college graduates (adjusted for ability) is "...more than 12 per cent..."[13] (Becker, 1964B:114). The rate of return to investments in smaller corporate manufacturing firms is "...of the same general magnitude as that from college education...The average rate of return... at a little over 7 per cent"[14] (Ibid.:115).

Becker (1964B:112) points out that "...a dynamic competitive economy produces considerable variation in the gain from capital..." whether physical or human. Despite the difficulty in estimating the rate of return to college education due to known factor differences (such as race, age, sex, region, ability, urban/rural) and to the fact that the pay-off takes much longer than that for most other capital investments,[15] a liberal college education yields a higher private rate of return than any other investment.

Realizing that the private rate of return to college education is lower than the real rate, such investment becomes more appealing than investment on physical capital. This is reflected in the data.

Becker (1964B:122) cites data that

> ..,indicates that the gross investment in college education rose from about 2.5 per cent of that in physical capital in 1920 to about 8 per cent in 1949 to 12 per cent in 1956. Foregone earnings, which are a rough measure of private investment, rose no less rapidly. So the private real rate of return has apparently been higher on college education than on physical capital.[16]

Before concluding that it is more profitable for relatively young individuals to invest in college education than in tangible capital, attention must be given the fact that Becker's data was for white, urban males. Becker (1971A:109) subsequently reveals that this group of college graduates constitutes only 45% of all college graduates. It is a very different story for the 55% of all college graduates who are rural, non-white, or female. Even though Becker made no estimates of returns to the latter groups of college graduates, the average returns to such groups are probably appreciably lower than to white, urban males. Consequently, Becker (Ibid.) sets the average private rate of return to all college graduates at less than 9%, even though a definite figure has not been calculated.

This casts an entirely different picture to the question regarding which investment yields the greatest private return, that in human capital or that in tangible capital. Becker (1971A:109-110) has refined his estimates of returns to tangible capital as well. "...(T)he average return on capital owned by business enterprises" is his latest conception of what the average return to college education should be compared (Ibid.). The 7% figure previously quoted refers to the rate of return to smaller corporate manufacturing firms (1938-1954) after corporate income taxes. Since the return on college graduation is computed before tax, the 12% (before-tax) return rather than the 7% should be used (Ibid.).[17]

After estimating the return to unincorporated business enterprises at 5 to 8 per cent, and the ratio of corporate to unincorporated capital at 6 to 4, Becker (1971A:110) comes up with the average return to all business capital at 8 per cent.

Therefore, there is very little difference in the average private rate of return to college education and to business capital (Becker, 1971A:110). The conclusion drawn by Becker is that there has not been an over-all under-investment in college education based on direct private returns.[18]

The very scanty data that are available for the first forty years of the 20th century indicates that in the United States there was a general decline in the absolute earnings differentials as well as the private rate of return to college graduates vis-a-vis high school graduates. The real costs of schooling rose substantially during the same period. However, Becker (1964B:131;134) cautions against firm conclusions being drawn because the information for the period prior to 1939 "...is extremely scanty and unreliable..." but that it is "...sufficiently important that much more attention should be paid to the historical evidence."

Becker found higher private rates of return on high school education than on college education. For the 1939 urban, native-white, male cohort of high school graduates, the best private rate of return is 16 per cent, unadjusted for ability. For the 1949 all white, male cohort of high school graduates, the private rate of return is 20 per cent, again unadjusted for ability. Thus, Becker puts the average private rate of return at 16 per cent, unadjusted for ability.[19] This is several percentage points higher than the returns to college graduates.

Even though the adjusted private rate of return to high school graduates is probably much lower than the unadjusted rate, it "...is probably considerable" (Becker, 1964B:127). Becker (Ibid.) states that although high school education has been compulsory in the United States for many years, "(t)he very rapid secular growth in high school education in the United States...is probably ultimately more directly related to anticipated private and social real rates of return."

Between 1939 and 1958, the private rate of return[20] to elementary education has been higher than high school graduation, which in turn has been higher than the return to college graduation. However, one must keep in mind that even the lowest average private rate of return (that to college graduation) is about 12 per cent per year. That is about the same as the after-tax rate of return in industry and much higher than the rate of return to low risk, liquid capital investment.

The private rate of return to college graduation declined about 1.5 percentage points from 1939 to 1949. Despite questionable statistical significance of the calculation, Becker (1964B:129) points out that this "...is consistent with extensive evidence of a general narrowing of skill differentials during the 1940's..." Since 1956, there has been a slight increase in the private rate of return to college graduates, "...consistent with the slight general widening of skill differentials during the 1950's" (Ibid.). During the entire twenty-three year period under study by Becker (1939-1962), the private rate of return to male college graduates changed very little.

In contrast, the private rate of return to high school graduates increased by 4 points from 1939-1949, and by 8 points after 1949, for a total of 12 points over the twenty-three years[21] (Becker, 1964B:129). The changes in the rates since 1939, according to Becker (Ibid.) are a "...net result of several changes with different effects."[22] Becker (Ibid.:131) thinks that, "(i)f adjusted rates behaved similarly to unadjusted ones, the rate of return from college did not change on balance and that from high school increased substantially after 1939." Becker's (Ibid.) apparent explanation for this phenomenon is rather curious:

> Therefore, advances in technology and other forces increasing the demand for educated persons must have offset the increase in college graduates and more than offset the increase in high-school graduates. Consequently, technological advance and other changes apparently increased the demand for high-school graduates more than that for college graduates.

The traditional view in neo-classical economics regarding the secular increase in education, especially since World War II, is that earnings differentials and rates of return on education will decline due to increased supply. However, Becker's (1964B:156) work "...indicates that this rapid growth in the number of high-school and college graduates has not reduced their economic position." An alternative view has developed from the empirical and theoretical research done by Becker and others to the effect that increased educational attainments "...in good part adjust to, as well as influence, the demands of the economic system" (Ibid.).

Becker (1964B:156) also found that "...investment in education in fact steepens and increases the concavity of age-earnings profiles..." and that earnings do not tend to drop when persons reach their late forties or fifties. Furthermore, Becker (Ibid.) states that

> ...the steepness of age-wealth profiles -- the relation between age and the discounted value of subsequent earnings -- is also increased by investment in education and other human capital. It is suggested that the apparent large secular increase in the peak wealth age in the United States resulted from a secular increase in the amount invested in such capital.

Becker (1964B:157) did not deal with the returns to specialized programs of education in high school or college, nor with the possible differences in returns to bachelor degrees, master degrees, and doctorates. His data were undifferentiated aggregates in terms of the type of program of education. Differences in quality between high schools and between colleges were not adjusted for either, even though Becker recognizes that differences do exist and that they are important. This is because a workable technique for quantifying quality of education has yet to be developed.

Becker's (1964B) study deals only with the United States, though he thinks it is reasonable to assume that there are similar, at least positive, private returns to education in European as well as underdeveloped countries. Others have done work on the returns to education in Europe and the underdeveloped countries.

The social rate of return to investment in different levels of education is a much more contentious and tenuous thing to deal with than is the private rate of return. The true, total social rate of return is the sum of all the direct and indirect social costs subtracted from the total social benefit (usually measured in terms of national income growth). The true (real or full) social rate of return, like the real private rate of return, is practically impossible to quantify. Economists calculate the social rate of return by taking pre-tax earnings differentials by level of education as a percentage yield on the total resource costs of education (Blaug, 1970Bb:204). Thus, the social rate of return to education encompasses the costs and benefits to individuals and/or her/his family as well as to the entire society.

> Social rates of return were calculated by including all costs and all benefits attributable to obtaining an education, both those accruing to the individual and/or his family and to society at large, whereas private rate-of-return estimates include only the costs and benefits to a student and/or his family (Rogers and Ruchlin, 1971B:171).

Since World War II, governments have been increasingly concerned with developing socio-economic policies which will minimize business cycle fluctuations and promote sustained economic growth. With the realization that increased education of the labor force has been responsible for a significant (nearly 25%) portion of the growth in GNP in the United States between 1929 and 1957, other countries have calculated the private and social rates of return to different levels of education in order to develop more effective policies. Bertram's study in Canada has already been discussed. Before discussing social rates of return to different levels of education in various countries, private rates of return will be compared for different countries.

Wilkinson (1966B) and Podoluk (1965B) estimated the private net present values of lifetime earnings for different occupations and the private rate of return to education (pre-tax income) respectively for males in Canada from 1961 census data. Podoluk (Ibid.:61) calculated a 16.3% private rate of return to completion of four to five years of secondary school, and 19.7% private rate of return to college graduation.[23] Thus, returns to college graduation are significantly higher than those to high school graduation in Canada -- the reverse of what was found in the United States. Podoluk (Ibid.:62-63) points out that

> ...there are significant differences in the age-earnings profiles of the various educational groups in the two countries. For example, in the age group 25 to 34 there are much greater relative differences between the average earnings of university graduates and the average earnings of those with secondary or elementary school diplomas in Canada than in the United States. A higher education is a scarcer attribute in Canada and as a result, younger entrants into the labor force with university degrees may have a greater immediate salary advantage relative to high school graduates and older university graduates than is the case in the United States.

Podoluk (1965B) hypothesizes that there has been competition among employers in Canada for the limited supply of young university graduates in the labor market, raising salaries rapidly. The shapes of the age-earnings curves are also different between Canada and the United States. There are greater differences between earnings of younger and older age groups in the United States than in Canada, though age-earnings patterns are similar for high school graduates in both countries. Podoluk (Ibid.:64) explains part of the sharp differences in age-earnings profiles for college graduates in the United States as compared to Canada is due to the fact that a much higher proportion of the United States college graduates had post-secondary training and/or graduate degrees.

Psacharopoulos (1973B) reported rates of return to secondary and post-secondary education from studies conducted in thirty-two countries across Europe, Africa, Asia, and the Americas. The rates of return reported are unadjusted and are for completed levels of education. See Table 2.3 for data.

For Great Britain, the private rate of return to secondary education is 6.2% and 12% to college education. In Norway, the figures were 7.4% and 7.7% respectively. The Netherlands have 8.5% return to secondary education and 10.4% return to college education. Turkey has a private rate of return to secondary education of 24% and 26% to college graduation. New Zealand, in contrast, has a 20% return to secondary education and 14.7% return to college education. The Philippines have a private rate of return of 28% to secondary education and 12.5% to college education, whereas Ghana has a 17% private rate of return to secondary education and 37% rate of return to college education. Kenya has 30% private rate of return to secondary education and 27.4% private rate of return to college education.

These figures are given as illustrative examples of the great variance in the private rates of return to education at both the secondary and college levels as well as between developed and underdeveloped countries. Table 2.3, taken from Psacharopoulos (1973B:62), reports the private and social rates of return for thirty-two countries. Primary education generally has the highest private and social rates of return because it is free in most countries and the foregone earnings are "virtually zero". Many empirical studies indicate a general decline in the private and social rates of return to education as one progresses from elementary to secondary to college education.[24]

TABLE 2.3: SOCIAL AND PRIVATE RATES OF RETURN BY EDUCATIONAL LEVEL AND COUNTRY

TABLE 4.1

SOCIAL AND PRIVATE RATES OF RETURN BY EDUCATIONAL LEVEL AND COUNTRY (per cent)

		Social			*Private*		
Country (1)	*Year (2)*	*Primary (3)*	*Secondary (4)*	*Higher (5)*	*Primary (6)*	*Secondary (7)*	*Higher (8)*
United States	1959	17.8	14.0	9.7	155.1	19.5	13.6
Canada	1961	..	11.7	14.0	..	16.3	19.7
Puerto Rico	1959	17.1	21.7	16.5	> 100.0	23.4	27.9
Mexico	1963	25.0	17.0	23.0	32.0	23.0	29.0
Venezuela	1957	82.0	17.0	23.0	..	18.0	27.0
Colombia	1966	40.0	24.0	8.0	> 50.0	32.0	15.5
Chile	1959	24.0	16.9	12.2	..	..	..
Brazil	1962	10.7	17.2	14.5	11.3	21.4	38.1
Great Britain	1966	..	3.6	8.2	..	6.2	12.0
Norway	1966	..	7.2	7.5	..	7.4	7.7
Sweden	1967	..	10.5	9.2	..	..	10.3
Denmark	1964	..	..	7.8	..	..	10.0
The Netherlands	1965	..	5.2	5.5	..	8.5	10.4
Belgium	1967	..	..	9.3	..	..	17.0
Germany	1964	..	..	..	..	..	4.6
Greece	1964	..	3.0	8.0	..	5.0	14.0
Turkey	1968	..	..	8.5	..	24.0	26.0
Israel	1958	16.5	6.9	6.6	27.0	6.9	8.0
India	1960	20.2	16.8	12.7	24.7	19.2	14.3
Malaysia	1967	9.3	12.3	10.7	..	..	..
Singapore	1966	6.6	17.6	14.6	..	20.0	25.4
The Philippines	1966	7.0	21.0	11.0	7.5	28.0	12.5
Japan	1961	..	5.0	6.0	..	6.0	9.0
S. Korea	1967	12.0	9.0	5.0	..	..	..
Thailand	1970	30.5	13.0	11.0	56.0	14.5	14.0
Hawaii	1959	24.1	4.4	9.2	> 100.0	5.1	11.0
Nigeria	1966	23.0	12.8	17.0	30.0	14.0	34.0
Ghana	1967	18.0	13.0	16.5	24.5	17.0	37.0
Kenya	1968	21.7	19.2	8.8	32.7	30.0	27.4
Uganda	1965	66.0	28.6	12.0	..	..	..
N. Rhodesia	1960	12.4	..	..	..	..	..
New Zealand	1966	..	19.4	13.2	..	20.0	14.7

Source: Appendix C
Note: For explanation of symbol notations see Appendix I.

Source: Psacharopoulos, 1973B:62.

Another general observation is that private rates of return tend to be larger than social rates of return. This is because the social costs are much higher than the private costs since education is highly subsidized by most states. Generally, higher education receives more public subsidy than secondary education. Psacharopoulos (1973B:68) points out, interestingly, that

> ...the less developed the country the higher the discrepancy between private and social rates at both levels under comparison secondary and higher education . This is surprising as one would expect a priori that the more developed the country the more heavily subsidized would be its educational system.

Psacharopoulos (1973B:73) reports that the differences between the private and social rates of return between each level of education are much greater in underdeveloped countries than in the developed ones. The rates of return to education in underdeveloped countries tend to be higher than in developed countries. The higher rate of return in underdeveloped countries accurately reflects the relative scarcity of human capital there relative to developed countries. However, "(t)he large variation in the rates of return, particularly in the less-developed countries, was seen to indicate large inefficiencies in the past allocation of resources and relative under-investment in primary education" (Ibid.:86). See Table 2.4 for data on the distribution of total resources devoted to education by level and country.

Data for the United States, Great Britain, Hawaii, and New Zealand indicate a u-shaped pattern of private rates of return to bachelor, master, and Ph.D. degrees (Psacharopoulos, 1973B:71).[25]

Psacharopoulos (1973B:70) tried to determine the difference in rates of return between general secondary education and technical

TABLE 2.4: DISTRIBUTION OF TOTAL RESOURCES DEVOTED TO EDUCATION BY LEVEL AND COUNTRY

(per cent)

Country	Primary	Secondary	Higher
United States	32	31	37
New Zealand	27	54	19
Great Britain	10	70	20
Israel	29	47	24
Mexico	53	35	12
Chile	46	38	16
Colombia	37	38	25
Malaysia	44	47	9
The Philippines	33	31	36
Ghana	33	57	10
South Korea	29	59	12
Kenya	30	47	23
Uganda	18	25	7
Nigeria	51	38	11
India	31	56	13

SOURCE: Psacharopoulos, 1973B:129.

secondary education. Only four studies were available -- Colombia, the Philippines, Thailand, and Turkey. Due to the low number of cases, and the conflicting results, no over-all conclusions could be drawn.

To determine efficient and rational investment on both the private and societal levels between human and non-human capital, one must know the relevant rates of return. See Table 2.5 for data which Psacharopoulos (1973B:82) reports. In comparing the over-all social rate of return to education (all levels) and the social rate of return to physical capital for thirteen countries, Psacharopoulos (1973B:84) reports that, generally, "...human capital is a superior investment in developing countries but not in developed countries..." His conclusions were that

> ...returns to both physical and human capital are higher in developing countries than in developed countries; and second, that whereas in developing countries returns are greatest to human capital, in the developed countries the greatest returns are to physical capital investments (*Ibid.*:86).

This leads to another hypothesis prevalent in the development literature -- that there is a positive (some say causal) relationship between education and economic growth (rate of growth of income). To test this hypothesis, Psacharopoulos (1973B:91) categorized thirty-two countries into five groups according to average per capita income and compared this with their over-all social rates of return to education. See Tables 2.6 and 2.7 for data.

What stands out in this comparison is a complete discontinuity in the relationship between those countries with per capita incomes below $US 600 and those above $US 1,000. Psacharopoulos (1973B:94) draws the conclusion that "...the rates of return decrease as the level

TABLE 2.5: SOCIAL RATES OF RETURN TO INVESTMENT IN PHYSICAL CAPITAL IN CERTAIN COUNTRIES

(per cent)

Country	Year	Rate of Return
United States	1959	9.7
Canada	1957	12.9
Mexico	1962	14.0
Venezuela	1958	16.7
Chile	1940-61	15.0
Great Britain	1955-59	8.6
Netherlands	1955-61	16.8
Belgium	1955-61	4.4
Germany	1955-59	10.4
India	1960	12.5
Japan	1957	20.4
Ghana	1962	8.0
Kenya	1966-67	18.8

SOURCE: Psacharopoulos, 1973B:82.

Note: The rates of return are before tax except for the U.S. where the rate is after profit taxes, and probably also Mexico.

TABLE 2.6: AVERAGE RATES OF RETURN BY EDUCATIONAL LEVEL AND PER CAPITA INCOME

Per Capita Income Level ($US)	Social			Private		
	Primary	Secondary	Higher	Primary	Secondary	Higher
(1)	(2)	(3)	(4)	(5)	(6)	(7)
100	28.7 (5)	19.4 (4)	12.6 (4)	29.1 (3)	21.1 (3)	25.2 (3)
200	15.6 (5)	14.6 (5)	11.6 (5)	24.8 (4)	20.2 (4)	25.4 (4)
350	24.6 (4)	17.5 (4)	13.5 (4)	32.0 (1)	27.5 (2)	22.2 (2)
650	38.5 (3)	10.7 (5)	12.0 (5)	27.0 (1)	11.9 (5)	17.2 (5)
1,600	----	6.8 (3)	9.0 (5)	----	10.3 (3)	12.3 (6)
2,200	21.0 (2)	11.1 (5)	9.8 (5)	155.1 (1)	13.0 (4)	11.5 (5)

Note: Numbers in parentheses refer to the number of observations.

SOURCE: Psacharopoulos, 1973B:91.

TABLE 2.7: OVERALL SOCIAL RATE OF RETURN TO EDUCATION AND PER CAPITA INCOME BY COUNTRY

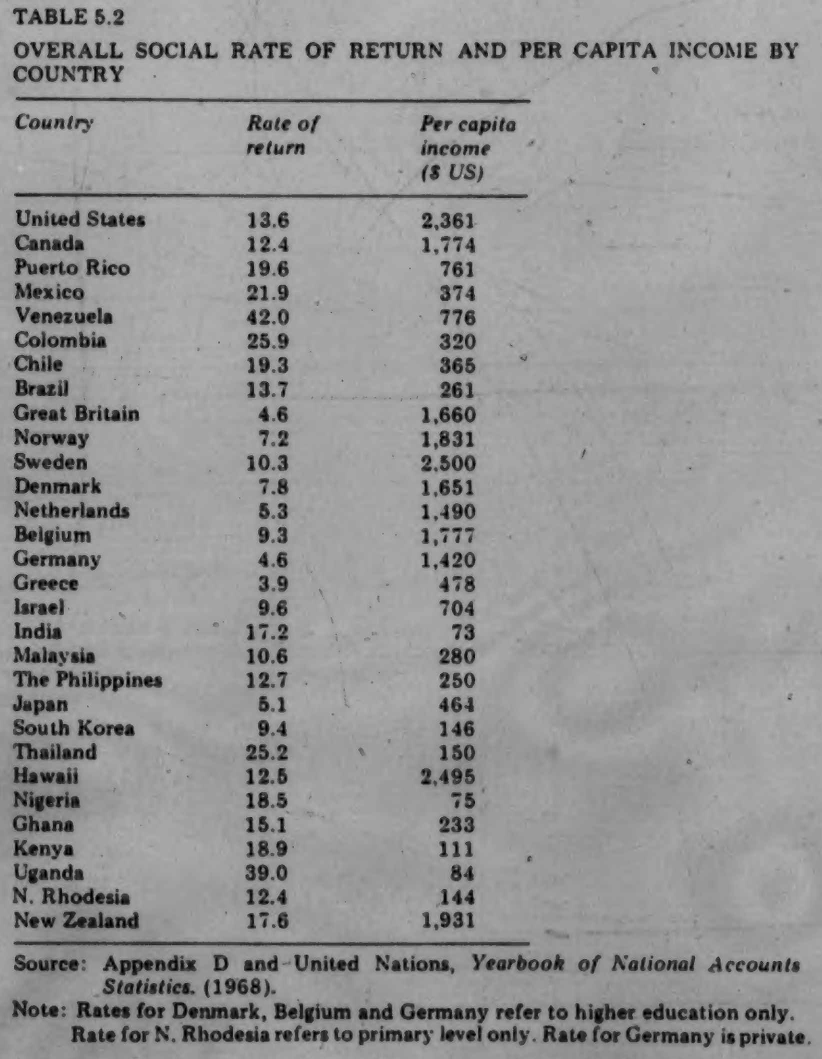

TABLE 5.2

OVERALL SOCIAL RATE OF RETURN AND PER CAPITA INCOME BY COUNTRY

Country	*Rate of return*	*Per capita income ($ US)*
United States	13.6	2,361
Canada	12.4	1,774
Puerto Rico	19.6	761
Mexico	21.9	374
Venezuela	42.0	776
Colombia	25.9	320
Chile	19.3	365
Brazil	13.7	261
Great Britain	4.6	1,660
Norway	7.2	1,831
Sweden	10.3	2,500
Denmark	7.8	1,651
Netherlands	5.3	1,490
Belgium	9.3	1,777
Germany	4.6	1,420
Greece	3.9	478
Israel	9.6	704
India	17.2	73
Malaysia	10.6	280
The Philippines	12.7	250
Japan	5.1	464
South Korea	9.4	146
Thailand	25.2	150
Hawaii	12.5	2,495
Nigeria	18.5	75
Ghana	15.1	233
Kenya	18.9	111
Uganda	39.0	84
N. Rhodesia	12.4	144
New Zealand	17.6	1,931

Source: Appendix D and United Nations, *Yearbook of National Accounts Statistics.* (1968).

Note: Rates for Denmark, Belgium and Germany refer to higher education only. Rate for N. Rhodesia refers to primary level only. Rate for Germany is private.

Source: Psacharopoulos, 1973B:85.

of per capita income increases, until some particular stage of economic development is reached and from that point the profitability of education increases alongside increases in per capita income." See Table 2.8 for the graphic display of data.

These results were confirmed by our own multiple regression analysis of the relationship between schooling and economic development for 136 countries.[26] The slightly negative relationship between education and development found for the poorest group of countries is explained by the assumption that a certain literacy rate threshold is a necessary but not a sufficient condition for development (Anderson, 1965A:347). Education does seem to be an important factor in economic development for those countries which have reached a certain middle point of development. Elementary-secondary school enrollment rates seem to be more important than enrollment rates in higher education and the middle level of development, whereas for the developed countries enrollment rates in higher education are more useful for predicting GNP per capita.

Psacharopoulos (1973B) utilized Schultz-type (rental values) and Denison-type (production function, time series) calculations to ascertain the contribution of education to the rate of economic growth in countries at different levels of development. He was unable to come to any conclusions because "(t)he empirical estimates were too crude for any generalizations to be made" (Ibid.:123).

There continue to be many controversies in the economics of human capital concerning theoretical, methodological, and empirical problems. These controversies include basic questions such as whether or not investments (whether private or public) in additional schooling

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TABLE 2.8: OVERALL SOCIAL RATE OF RETURN TO INVESTMENT IN EDUCATION AND THE LEVEL OF ECONOMIC DEVELOPMENT

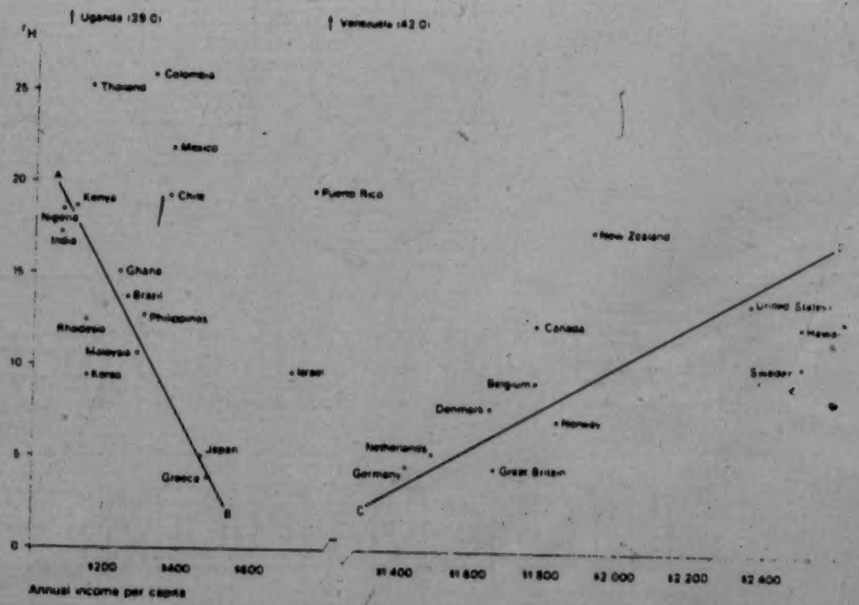

Figure 6.3. Overall social rate of return to investment in education and the level of economic development.

Source: Psacharopoulos, 1973B:92.

have yielded a rate of return comparable to other investment opportunities; whether or not it is indeed possible to calculate a social rate of return to investment in schooling; whether or not it is meaningful to compare rates of return to a particular level of education between developed and/or underdeveloped countries because of the great differences in systems of education and in the structure of national labor markets and economies; and, whether or not major breakthroughs in methodological problems will occur with technological advances (such as in econometrics).

Economists tend to ignore sociological data and considerations, even though the latter are directly relevant to social reality. Economists and sociologists ask different questions and focus on different variables. Until recently, human capital literature has been in the domain of economics, with very little in it that has not been written by an economist.

Despite all of the controversies within human capital economics and the mounting criticisms of human capital theory by sociologists as well as economists, human capital theory has had and continues to have tremendous influence on the policies of governments and organizations around the world as well as on much current social science research. The awarding of the 1980 Nobel Prize in Economics to Professor Theodore W. Schultz for his work in human capital theory attests to its importance.

CHAPTER II

Footnotes

[1] See Footnote 2, Chapter I.

[2] Denison was measuring quantity and not quality of education.

[3] 0.40 as a per cent of 1.67.

[4] All calculations treat all the costs of education as investments. If any were considered consumption, the rates of return would be higher. There are other reasons also related to how rates of return are calculated which tend to underestimate them (See Bertram, 1966B:63-64).

[5] There are other forms of investment in human capital besides the increased formal education, such as on-the-job training (both general and specific), information (about prices, wages, consumption and production possibilities, political system, social system, job opportunities, job searching, etc.,), emotional and physical health. Not all of these investments yield positive rates of return.

[6] "'Real' earnings are the sum of monetary earnings and the monetary equivalent of psychic earnings" (Becker, 1964B:38). Accordingly, individuals with comparable stocks of human capital may have different return rates (different measurable job earnings) if some prefer status and other psychic benefits to monetary benefits. Thus, profit on investment in education can take the form of money or psychic returns. Becker (Ibid.:121) does not deal with the full private rate of return because it is "...exceedingly difficult..." and "...far beyond the scope of this study." Consequently, the private rates of return on a particular level of education will always be less than the real or full rate, and hence underestimated (Schultz, 1968A:285).

[7] These characteristics include such things as sex, age, race, urban/rural status, and ability according to Becker; as well as employment status, affinity for mobility, motivation, class, and region of habitation according to Schultz.

[8] See Podoluk (1965B:54-60) for a detailed discussion.

[9] Net earnings is used by Becker (1964B:38) to mean "...gross earnings during any period minus tuition costs during the same period."

[10] It can be pointed out that Hansen (1963A) used a similar approach but treated the costs as an investment rather than a negative income, eliminating the use of negative numbers. "The rate of return then

was calculated to be that rate of interest which made the present value of the investment equal to the present value of the income stream" (Podoluk, 1965B:61).

[11] The rates of return estimates are made for gross earnings before taxes. The analysis is based on cross-sectional data at a particular point in time. Thus, the rates of return that are calculated are based on a static situation, though Becker has made adjustments for the probable secular growth in earnings as well as for the cross-sectional data for rising earnings (Podoluk, 1965B:65).

[12] Becker discounts both the streams of costs and returns to adjust for inflation (to keep dollars constant). The internal rate of return "...is simply a rate of discount that makes the series of absolute earnings differentials between college and high school graduates sum to zero" (Becker, 1964B:76). It does not necessarily equate the present values of returns and costs (Ibid.). Becker (Ibid.) does make use of the other method, namely calculating "...present value of the monetary gain...sum of all absolute differentials after they have been discounted at appropriate market interest rates...", though emphasis is on the former method.

[13] Becker (1964B:111) states, however, that "(i)f the rates of return were normally distributed and if the coefficient of variation equaled one, about one-third of the members would receive rates either above 24 or below 0 per cent." Furthermore, "(t)he existence of many low and even negative returns has been presumed by others from the wide overlapping of the distributions of the earning of college and high-school graduates" (Ibid.). The coefficient of variation in returns to college graduates is "...very large, probably averaging more than 2.0" (Ibid.).

[14] "...(F)rom 1938-1957, a rate of return was defined for all corporate manufacturing firms as the ratio of after-tax profits to total capital. The simple average of these ratios equals about 7 per cent..." (Becker, 1964B:115). The coefficient of variation in returns to investment in smaller corporate manufacturing firms is "...somewhere between one and two" (Ibid.:112). This indicates that such investments are with high risk and illiquidity -- qualities akin to investment in human capital (Ibid.:115). The rate of return to low risk, liquid investments are several percentage points lower than the 7 per cent return to smaller corporate manufacturing firms (Ibid.).

> [15] While business investments are often said to pay off within five or ten years, the pay-off from college takes much longer: the unadjusted rate of return to the 1949 cohort of white male graduates is about 13 per cent; yet ten years after graduation it would still be negative and after a full fifteen years only about 6 per cent (Becker, 1964B:112).

[16] Becker states that gross investment in education may have risen faster because costs not quantity rose faster. He states the most reasonable measure of quantity of education is the number of persons receiving college education. "Since 1940 the number of college graduates in the labor force has much more than doubled while the real value of the capital stock has increased by less than 70 per cent..." (Becker, 1964B:123).

[17] Becker adjusted the 12% return to include incorporated non-manufacturing firms (for which he did not have an estimate on the return). Thus, Becker set the before-tax return to all incorporated firms (manufacturing and non-manufacturing) at 10%.

[18] "...(D)irect returns alone cannot justify a large increase on college education relative to expenditures on business capital" (Becker, 1971A:110). However, indirect, or external returns to college education have not been taken into account, largely because an economist has "...few techniques for measuring them, and he usually does not even think that he knows much about them (Ibid.:111). Since not much is known about the possible external returns to college education, "...a firm judgment about the extent of under-investment in college education is not possible" (Ibid.:115). However, Becker (Ibid.) does point out tne way of increasing the private rate of return to college education. That is to improve the quality of (the) college students.

19"Unfortunately, adjusted high-school rates cannot be estimated very easily" (Becker, 1964B :125). Becker (Ibid.:126-127) adds that

> (t)he unadjusted rate of return to white male high-school graduates is greater than that to college graduates and the unadjusted rate to elementary-school graduates would be still greater. Such evidence might well suggest "diminishing returns" or "diminishing marginal product" from additional years of schooling. Adjustments for differential ability, however, seem to reduce the apparent rate more to high-school than to college graduates, and, I may add, probably still more to elementary-school graduates. So the appearance of dimishing returns results at least in part from the nature of the correlation between ability and education. Fully adjusted rates, therefore, might show no diminishing returns and might even show "increasing returns" to additional years of schooling.

[20] In the discussion of comparisons of rates of return to elementary education, high school graduation and college graduation are all unadjusted for differential ability.

[21] Becker (1964B:129) warns us to note that since these rates of return are unadjusted for differential ability, the true rates would be different if the correlation between ability and education changed. It seems that differential ability of high school graduates probably has risen over the time period "...because now only the physically handicapped, dullards, or least motivated persons fail to go to high school" (Ibid.). Becker (Ibid.) goes on to state that others have found

> ...a large ratio of adjusted to unadjusted earnings differentials between high-school and elementary-school graduates at younger than at older ages. The ratios between college and high-school graduates, on the other hand, are smaller at younger ages.

Thus, the "true" rates for high school graduates after adjusting for ability may not be greater than those for college graduates, since ability seems to differ more between high-school and elementary-school students than between college and high-school students (Ibid.:155). "A similar qualification applies to the crude evidence indicating that rates on elementary-school education are the highest of all" (Ibid.).

[22] See Becker (1964B:129) for discussion.

[23] These figures represent the increment in earnings over the earnings of persons with five to eight years schooling and over the earnings of persons with four to five years of secondary schooling respectively.

[24] Schultz (1961 - U.S.; Hansen, 1963 - U.S.; Becker, 1964 - U.S.; Hanoch, 1967 - U.S.; Podoluk, 1965 - Canada; Wilkinson, 1966 - Canada; Carnoy, 1967 - Latin America; Carnoy, 1970 - Puerto Rico; Selowsky, 1968 - Colombia; Hewlett, 1970 - Brazil; Blaug, et. al., 1967 - Great Britain; De Wolff and Ruiter, 1968 - Netherlands; Kim, 1968 - South Korea; Blaug, 1971 - Thailand). Some studies, however, have indicated the reverse trend.

[25] The private rate of return to a Master's degree is reported as 7.5% and 9.1% for a Ph.D. in the United States based on Ashenfelter and Mooney (1969) and Hunt (1963), However, Schultz (1971B:115-119) states that the 7% private rate of return to graduate education reported by Hanoch (1967) should be doubled because adjustments were not made for earnings of graduate students nor for the higher rental rate due to graduate students' superior abilities vis-a-vis college graduates. In any case, Schultz readjusts the private rate of return to graduate education from 7% to between 14% and 15%. He states that the 7% figure is grossly underestimated. He does, however, dismiss Yoram Weiss' (1968) figure of 17% as too high.

[26] Data was taken from the World Handbook of Political and Social Indicators II which was collected under the direction of Charles Lewis Taylor and Michael C. Hudson and published by the Inter-University Consortium for Political Research in Ann Arbor, Michigan, 1973. The paper was "World Development Project: Multiple Regression Excercise" by S.M. Belcher El-Nahhas, University of Alberta, May 1977.

CHAPTER III

THE INFLUENCE OF HUMAN CAPITAL THEORY ON PUBLIC POLICY

Human capital theory has had great world-wide influence on public policy since the late 1950's. The idea that education is capital in the same sense as material capital has had tremendous impact on educational participation rates, the proportion of national budgets allocated to education, the administration of public systems of education, the size of public systems of education and their organizational structure, as well as the curricula and pedagogy.

In short, human capital theory has had a profound impact on the structure, content, and methods of schooling. Not only has the size of the educational system been expanded, the pattern of that system has been transformed. It is the influence of human capital theory as a major force responsible for the development of public policy behind this transformation which is the focus of this chapter.

Schultz (1972A:28) states that

> (i)t is fair to say that we do not have an economic policy that encompasses education; nor do we have even a partial economic policy to optimize the many different classes of educational expenditures. Although the total annual expenditures on regular schooling and higher education in the United States now exceeds $70 billion, an accounting which does not include the earnings foregone by students nor the expenditures on programs complementary to education, there is no policy to integrate in terms of costs and benefits these educational expenditures among schools and among programs to which funds are allocated, despite the magnitude of the expenditures and the heterogeneity of the educational enterprises. Even if every public program were efficient in terms of its specific purpose, it would be astonishing if we were to discover that each and every educational program met

> the test of general economic efficiency. On the contrary, we would expect and we are beginning to identify some of the mal-allocations within the educational complex. But the task of investigating the sources and the extent of the lack of general economic efficiency in this area presents a large set of research opportunities that will continue to go by the board if they are left to the research units of major school systems, state educational bodies, and the many ongoing federal programs.

In response to Schultz, perhaps it is fair to say that human capital theory has over-all had far-reaching influence on public policy decisions regarding education as well as on research. However, there are many instances of inequality and inefficiency. This may well be due to conflicting social goals, and hence, lack of a comprehensive, well-planned, well-executed and ably-administered social policy. Changes in the educational system have certainly been piecemeal and incomplete. Despite all this, there has been a definite, decisive shift in public policy in the late 1950's as a result of social science research. Human capital theory has played no small part in this shift.

In discussing the influence of research on public policy and the public, Richard A. Dershimer[1] states that "(i)n education there are fewer well-known examples but notable ones" and then goes on to point out three, of which one is "...research on the economics of education by Schultz that altered 'the prevailing view that schools consume capital to the view that schools produce capital'" (Weaver, 1975B:66-67).

Psacharopoulos (1973B:1-2) remarks that "...there has been an almost 180° shift of emphasis in development planning, the emphasis changing from physical to human capital as the major source of growth" once education had been seen as an investment.

A. Scale and Scope of Educational Expansion at all Levels

The size and the cost of education has grown dramatically since the 1950's. This has caused considerable concern on the part of governments as to the efficiency and rationality of such growth. Human capital theory reassured governments that such expenditures and expansion was indeed economically justifiable and even necessary to maximize socio-economic growth for the nation and the individual.

Rivlin (Schultz, 1972A:85-86) remarks that policy decisions in the United States have been influenced by human capital research since the 1950's, that it

> ...played a role in increasing federal funding for education, health services, manpower training, and other human investment programs, especially for the poor, in the middle 1960's...It was this fundamental view of education, training, and health services as investments in people that influenced the thinking, not the rate of return estimates themselves. The strategists of the war on poverty picked up the concept of human investment...

This chapter is less concerned with focusing on the cost and size of educational expansion than it is with the pattern of that expansion. However, a few illustrations of the size and cost of educational expansion will help the reader appreciate its magnitude.

The growth of enrollments in various levels of education for the OECD countries between 1950 and 1965 are indicative of the scale of expansion. OECD (1970Bb:32) reports an increase of 32% for primary education, 87% for secondary education, and 150% for higher education. The largest growth in absolute numbers was in primary education, due mainly to demographic factors; and in secondary education, due mainly to democratization. The highest rate of growth was in higher education.

During the 1950's, higher education for a minority was stressed. Social demand for higher education was increasing in the developed countries, where the need for highly educated manpower was rising rapidly. Engineering and science were stressed. With most underdeveloped countries gaining political independence in the late 1950's and early 1960's, their development policies were geared towards copying the structures of modern, industrialized countries. This led them to invest in physical capital-intensive projects and the higher education of a minority elite. Secondary education was improved, but primary education was neglected and pre-school education virtually non-existent. There was little, if any, vocational and technical education.

Underdeveloped countries began establishing their own universities and expanding those already in existence. A great proportion of education budgets was spent to this end.

By the early 1960's, the push for democratization of secondary education in Western Europe and Canada resulted in the development of comprehensive secondary schools. Besides building large comprehensive secondary schools, Canada had also begun to build large vocational high schools. Such vocational and technical secondary schools were already a long established part of the dual secondary system in Western Europe.

The World Bank supported an education project for the first time in 1962, and the following year issued its first memorandum on its policies regarding education (Williams, 1976B:94). Employing primarily economists, the World Bank was influenced by human capital theory. World Bank loans to underdeveloped countries for education were geared primarily to the development of middle-level skilled manpower. Thus, between 1963 and 1971, World Bank lending was allocated to primary, intermediate, and higher education in the proportion of 5:72:23 (*Ibid.*).

This reflects a lag in terms of developments in the developed countries, where educational expansion occurred at the elementary level first. However, it also reflects the lag of acceptance into economic development theory (or more appropriately, the lag in its acceptance by development planners), of the importance of human capital formation from the very beginning, e.g., pre-school age years.

Full-time enrollment in elementary, secondary, and post-secondary education combined increased 45.7% between 1960/61 and 1971/72 in Canada (OECD, 1975Bc:¶29). The retention rate of secondary school students (as measured by Grade 12 enrollment related to Grade 2 enrollment ten years earlier) doubled between 1961/62 and 1972/73 from 36.4% to 71% (*Ibid.*:¶31).

Canada stands out as having achieved a greater change in its educational system than anyother country since World War II. During the 1940's, Canada was "...one of the less developed (educationally) of the great democracies" (OECD, 1976B:22). Enrollment in Canadian universities, for instance, increased nearly eighteen times between 1952 and 1972, from 5.4% of the 20-24 year olds to 18.1% (Fleming, 1974B:88).

The expansion of elementary school (kindergarten through Grade 8) enrollment rose from 1950 through the 1960's in Canada reflects the sharp increase in school-age population. In 1965/66, Canada had a record four million children enrolled in elementary schools, 96.1%

of which were in public schools, 2.8% in private schools, and 1.1% in federal (Indian, Northern Administration, and Overseas) schools (Illing and Zsigmond, 1967B:5-6).

Enrollment in secondary schools more than tripled in Canada between 1950 and 1965/66, from less than 400,000 to over 1.2 million students, with the peak rate of increase during the late 1950's and early 1960's. It continued to grow into the late 1970's. This growth in secondary school enrollment is the result of an increase in population and an increase in educational participation rates, both roughly of equal importance (Illing and Zsigmond, 1967B:21).

The growth of enrollment in non-university post-secondary education in Canada betwen 1951 and 1965 has been tenfold (2,800 in 1951, 12,000 in 1960, 26,000 in 1965). Whereas the 18-24 year age group in Canada increased by less than one-third between 1955/56 and 1965/66, the proportion of that group enrolled more than tripled (Illing and Zsigmond, 1967B:69).

Enrollment rates for post-secondary education experienced the largest increase in most developed countries. The percentage of 20-24 year olds enrolled in post-secondary education in Canada jumped from 13.5% in 1960 to 20.9% in 1965 to 25.5% in 1969 compared to 32.2%, 40.4%, and 48.4% in the United States and 5.8%, 9.2%, and 12.1% in West Germany (OECD, 1975Bc:#33). See Table 3.1 for other comparisons.

Growth of post-secondary enrollments in OECD countries between 1960 and 1965 was 9.1%. It dropped to 7.2% between 1965 and 1970 (OECD, 1974Bc:15). The number of students enrolled in post-secondary education between 1960 and 1970 tripled in France, Sweden, and Greece,

TABLE 3.1: ENROLLMENT RATIOS FOR THE 20-24 YEAR AGE GROUP, SELECTED COUNTRIES

Country	1960	1965	1969
Canada	13.5%	20.9%	25.5%
France	7.4%	13.9%	15.9%
Japan	8.6%	11.9%	15.8%
England and Wales	6.2%	8.7%	9.8%
U.S.A.	32.2%	40.4%	48.4%
U.S.S.R. 11	11.0%*	29.5%*	26.5%*
West Germany	5.8%	9.2%	12.1%

*Includes evening and correspondence students.

SOURCE: UNESCO Statistical Yearbook, 1972, Table 2.7.

while it doubled in fifteen other OECD countries (mostly between 1962 and 1967). In Canada, the growth in post-secondary enrollment occurred at the end of the 1960's, after the peak of the baby boom (Ibid.:16).

Increasing enrollment in Canadian universities since 1950 has also reflected more an increase in participation rates than population. Enrollment rose from 72,737 full-time university students in 1955/56 to 113,857 in 1960/61 to 205,888 in 1965/66. This represents an increase of 57% for the former period and 81% for the latter. This can be compared to the over-all population increase of 18-24 year olds of one-third to realize the substantial increase in educational participation rates at this level (Illing and Zsigmond, 1967B:34).

The full-time university enrollment as a percentage of the 18-24 year old population increased in Canada from 4.2% in 1951/52 to 4.7% in 1955/56 to 6.7% in 1960/61 to 10.1% in 1965/66 (in which year British Columbia reached 13.5%)(Illing and Zsigmond, 1967B:37).

Graduate enrollment in Canadian universities declined during the early 1950's. However, it rose from 47 per 1,000 undergraduates in 1955 to 58 in 1960 and then to 84 in 1965. As Illing and Zsigmond (1967B:48) point out, "(b)y 1965, there were 75% more undergraduate but 160% more graduate students than five years earlier."

Despite the large increase in relative terms, the absolute number of graduate degrees earned in Canada between 1950 and 1965 is low. In 1951/52, less than 234 Ph.D.'s were granted by Canadian universities.[2] In 1965/66, the number had risen to about 700. Canada lagged behind the United States and the U.S.S.R. and was only slightly ahead of Western Europe in terms of the number of Ph.D.'s earned per 10,000 people aged 23 years (Illing and Zsigmond, 1967B:64). See Table 3.2 for comparisons.

At the master's degree and licence level, 1,601 were granted by Canadian colleges and universities in 1951/52. This dropped in 1955/56 to 1,459 and rose to 2,447 in 1960/61 and to 5,000 in 1965/66 (Illing and Zsigmond, 1967B:66).

For the period up to the mid-1960's, efforts to expand education, not only to accommodate the increased number of school-age children but to increase the rate of educational participation at the secondary and post-secondary levels, exceeded those in Western Europe, "...but lag[ged] substantially behind those of the United States, and probably also lag[ged] behind those of the U.S.S.R." (Illing and Zsigmond, 1967B:58).

On a world level, enrollment increased 65% in pre-school education, 33% in primary education, 65% in secondary education, and 107% in higher education between 1960 and 1968 (UNESCO, 1972B:37).

Another way of gaining an appreciation of the size of educational expansion since World War II is the increase in percentage of GNP spent on education. Canada spent 4.4% of its GNP on education in 1960. This increased to 9.0% in 1970 (OECD, 1975Bc:¶41). Table 3.3 gives comparisons for some OECD countries.

UNESCO (1972B:42) reports that "...average world-wide public spending on education is increasing more rapidly than the average world-wide gross national product[3]...", rising from 3.02% of world average GNP in 1960 to 4.24% in 1968. Proportion of state budgets spent on education also reveal the importance placed on education as an instrument of economic growth and development. Between 1960 and

TABLE 3.2: NUMBER OF PH.D.'S EARNED PER 10,000 PERSONS AGED 23 YEARS AND OLDER

Year	Country	Number	Degree
1965/66	Canada	26	Ph.D.
1965/66	U.S.A.	67	Ph.D.
1963	Canada	18	Ph.D.
1963	U.S.A.	55	Ph.D.
1963	U.S.S.R.	30	Kandidat Nauk
1961	France	15	Niveau doctorat de 3^{e} cycle

SOURCE: Illing and Zsigmond, 1967B:64.

TABLE 3.3: SHARE OF GNP DEVOTED TO PUBLIC EXPENDITURES ON EDUCATION

Country	1961	1969
Canada	4.6%	8.3%
France	2.4%*	4.5%
Japan	4.1%*	4.0%
United Kingdom	4.3%	5.6%
United States	4.0%+	6.3%
U.S.S.R.	5.9%*	7.3%
West Germany	2.9%	3.6%

*Figure applies to 1960

+Figure applies to 1959

SOURCE: UNESCO Statistical Yearbook, 1972, Table 2.24.

1965, this proportion rose from 14.5% to 16.4% in Africa, 15.6% to 17.6% in North America, 12.6% to 15.4% in Latin America, 11.8% to 13.2% in Asia, 13.5% to 15% in Europe and the Soviet Union, and 10.4% to 15.7% in Oceania (Ibid.:41).

While these world-wide growth rates in educational expenditures and enrollments have increased substantially between the 1950's and mid-1960's, there are marked disparities between the developed and the underdeveloped countries in terms of percentage of school-age children actually in school and in terms of the quality of education. "With about one-third of the population and only one-quarter of the young people in the world, industrialized countries spent ten times more money on education than the developing countries" (UNESCO, 1972B:50). The differences, furthermore, are getting larger.

Between 1960 and 1968, the industrialized countries increased their spending on education by 145%, whereas that of the underdeveloped countries increased by 130% (UNESCO, 1972B:50).

Between 1960 and 1968, one-half of the world's school enrollment of 5-24 year olds were in the developed countries, despite the fact that the underdeveloped countries have three times as many children as the developed countries[4] (UNESCO, 1972B:50). Most underdeveloped countries still have not reached universal elementary school enrollment, despite having set that as a priority goal in 1960. In Asia, the adjusted enrollment ratio for Grades 1-5 was 83.2% in 1970. In 1965, it was 44% in Africa. The Arab states reported 62.1% for 1967. Only Latin America appears to be coming close to reaching the target, reporting 100% enrollment in 1968 (with the exception of a few countries) (UNESCO, 1972B:53).

Even these figures mask the reality of the lack of elementary education for a significant proportion of school-age children. In 1968, 60% of school-age children were not in school in Africa, 50% in the Arab states, 45% in Asia, and 25% in Latin America (UNESCO, 1972B:54).

Despite the phenomenal expansion of education in the underdeveloped countries since 1960, the provision of education still lags at least thirty years behind Europe. Table 3.4 indicates the ratio of attendance in post-secondary education for six world regions.

During the 1960's, the OECD countries achieved universal enrollment for all children at least through the first stages of secondary education, extended the period of compulsory schooling, and increased their investment in education at twice the GNP growth rate (OECD, 1970Bb:12).

The financial burden on the underdeveloped countries is much greater than it is on the developed ones. Even though most underdeveloped countries have been spending about the same share of their income on education as the developed countries, the costs to the former are relatively much greater.

> ...(A)t the primary levels, it costs most low-income countries, relative to their national income, five to ten times as much to provide primary schooling for a given proportion of the school-age population as it does the high-income countries, relative to their national income. It usually costs a poor country proportionately very much more at secondary and higher levels ("National Strategies for Development" Mimeo, n.d.)

It is not surprising, then, that enrollment rates are much lower than in the developed countries.

Shifting to the qualitative, structural changes in the educational system, there were many changes in organization, content, and methods of schooling during the late 1950's and 1960's which can be traced

TABLE 3.4: ENROLLMENT RATIOS (OF ATTENDANCE) IN POST-SECONDARY EDUCATION (1960's)

Region	Ratio
North America	1 - 8
Europe	1 - 20
Asia	1 - 38
Arab States	1 - 45
Latin America	1 - 49
Africa	1 - 90

SOURCE: UNESCO, 1972B: 52.

to a discernible need for public policy changes resulting from social science research. The influence of social science research has been both direct and indirect. Popularizing knowledge so that the public accepts it and then pressures institutions for a change is an indirect effect. Calling on experts for advice and funding specific research projects are direct ways in which governments are influenced by social scientists. Social scientists themselves are often explicitly interested in influencing public policy and make their views known to political decision-makers. The "...connections between government and social science have been strongly institutionalized" in the past generation, and although responsibility for policy rests with government, politicians rely on research findings of policy-oreinted studies (Karabel and Halsey, 1977B:5).

Human capital theory research has been particularly influential on public policy. The opening up of higher education and the development of alternative post-secondary institutions in North America and Western Europe are examples of structural changes justified, if not entirely induced, by human capital theory.

These post-secondary institutions generally fall into the category of "short-cycle higher education establishments" since they offer two year programs and have much lower entrance requirements than the traditional four year universities and colleges. Their establishment is viewed as part of the democratization and massification of higher education as well as providing a second chance to individuals who have dropped out of education to return and succeed. Thus, equality of educational opportunity has been extended beyond the traditional school attendance years. It fits in with the strategy to reduce wastage of talent.

Along with this diversification in post-secondary education is the provision for part-time study. Part-time higher education has become increasingly popular since the end of the 1960's in Western Europe and North America. In fact, part-time courses in universities have developed more rapidly than full-time higher education in Western Europe since 1965. The United Kingdom has developed the greatest variety of types of post-secondary education in the 1960's as well as the largest percentage of students enrolled in part-time vis-a-vis full-time post-secondary education courses (OECD, 1974Bc:20-21).

Acceptance of the concept of common comprehensive secondary schools rather than narrow, specialized education at the secondary level, especially in the underdeveloped countries and Western Europe, is another such development. A greater flexibility in curricula, sensitive to the changing needs of technology and to the varying needs and interests of individual students, also occurred. Along with this was the postponement of educational specialization and vocational choice, at least to age 14. A common school experience for all children was seen as a positive step towards equality of educational opportunity. There was a move towards greater individualization of instruction within the classroom and a no-fail system (elimination of lock-step progress) in elementary and secondary schools in Western Europe and a move in that direction by the underdeveloped countries. Transferability from one program to another at both the secondary and the post-secondary levels was another change aimed at providing equality of educational opportunity.

Increasing the period of compulsory education to at least age 14 in Western Europe and some underdeveloped countries was a decision influenced by human capital theory. It was, however, dwarfed in reality by the fact that pressure of voluntary enrollment in European secondary schools was increasing the period of common educational experience beyond the compulsory period anyway. In May 1969, the European Ministers of Education stated in a formal resolution "that the period of education should be extended to 11 or 12 years for all and that education be based on a broad common curriculm," (OECD, 1970Bb:95).

The emphasis on pre-school education and the improvement and availability of kindergarten (integration into elementary schooling) in North America and Western Europe and to a lesser extent the underdeveloped countries are other examples of human capital theory influence on public policy regarding education. Development of human capital during the pre-school years is especially important for those children from "disadvantaged" groups who would enter school with significant handicaps affecting academic achievement vis-a-vis those children from more advantaged groups.

These pre-school education programs are related to a variety of compensatory educational programs for elementary and secondary school students from disadvantaged groups. The concept behind such programs was that wastage of talent could be minimized, if not eliminated, by developing the abilities of students from disadvantaged groups. Compensatory programs were designed to prevent dropping out, and in a wider sense, to provide equality of educational opportunity. These programs often included nutritional supplements and/or hot meals as well as training for the mothers to off-set disadvantages in the home environment which impede the academic achievement and motivation of children from poor families.

Schultz (1972A:46) states that "...there are strong reasons for believing that preschool investment ranks high, even higher than that pertaining to elementary schooling, both in terms of rates of return and of equity." Programs designed to provide equality of educational opportunity at the entry point in the educational system are thus seen as being more promising than intervening later at higher levels after the children have experienced academic failure and reinforcement of psychological factors detrimental to achievement. Furthermore, investment in pre-school human capital is a dual investment -- since it is also "...a means of increasing the skills and knowledge of mothers with low levels of schooling..." (Ibid.:47).

In the underdeveloped countries where other factors required for human capital development are also lacking, pre-school years are even more important in the determination of life chances -- for physical survival as well as for academic achievement. Human capital theorists have stressed this level since the mid-1960's.

Any strategy designed to provide equality of educational opportunity fit into the category of change in organization or structure of education. The cost of continued and/or increasing inequality is higher to society than the cost of rationally designed, efficiently administered programs to equalize opportunity.

"Bussing" in the United States is an example of a nation-wide strategy to desegregate education in order to equalize opportunity. Since segregation by race and class was found to be detrimental to the educational and life chances of poor children from racial minorities, the courts have ordered bussing of poor Negro children and middle-class white children to obtain a balance of each in the classroom. Bussing has become institutionalized in the United States.[5]

Another strategy developed to provide equality of educational opportunity was the direct financing of education by the federal governments in the United States, and to a lesser extent in Canada.[6] This was done, among other reasons, to try to equalize financial resources and physical facilities available to schools across neighborhoods and regions. The great discrepancies in material resources available to schools had created vast inequalities in the quality of education and in the life chances of the students.

Because education is locally controlled in the United States, there are great problems of disparities in resources available to school boards. The tax base differs as much as 2,000 to 1 between school districts in the United States (Carlson, 1974A:115). Differences in tax base are urban/suburban, rural/suburban, and even suburban/suburban in the same state -- not to mention gross differences between states and regions.

> As the California Supreme Court pointed out in the Serrano case, "affluent districts can have their cake and eat it too; they can provide a high quality education for their children while paying lower taxes. Poor districts, by contrast, have no cake at all (Greenbaum, 1971:514)." The same can be said for the states. It should be borne in mind that taxes hurt the poor more than the rich, because the poor are already at a subsistence standard of living. Moreover, the property tax is especially regressive because it is not based on ability to pay (Carlson, 1974A:115).

In addition, it has been shown that the wealthier neighborhoods in a particular school district have more money per child spent in school than do the poorer neighborhoods in the same school district. It even goes as far as within a school, more money is spent per child on children in the higher tracks and ability groupings. It is generally children from the middle and upper middle class families who are in the higher ability groupings and tracks (Rothstein, 1971A; Shaefer, et. al., 1970; and Porter et. al., 1973B)(Carlson, 1974A:116).

Carlson (1974A:115) notes that it is not only the absolute _wealth_ between school districts and states which differs but also the _effort_. The following table indicates the discrepancies between wealth and effort for four districts in the United States (_Ibid_.)

CATEGORY	DISTRICT	WEALTH*	EFFORT+
urban	Newark, N.J.	$20,338	$3.69
suburban	Millburn, N.J.	$92,856	$1.43
rural	Baldwin Park, Ca.	$ 3,706	$5.48
suburban	Beverly Hills, Ca.	$50,885	$2.38

* Property value per pupil
+ Tax rate

"What all this shows -- and it is typical for the nation as a whole -- is that poor communities spend less money per pupil but they make a greater effort to support education than do rich communities" (_Ibid_.). The direct intervention in education by the federal government since the late 1950's in the United States has helped diminish some of these gross inequalities between school boards. Federal funds to school boards, and even to state governments, have been tied to requirements specified by the U.S. government in an effort to provide equality of educational opportunity throughout the country.

The establishment of student counselling services in secondary schools and post-secondary institutions is also consonant with human capital theory. Such services are seen to be necessary by human capital economists to provide students with information about their own capabilities and interests and also information about how and where to best pursue their development.

Human capital theory focused attention on the need for improvement in the quality of elementary and secondary schooling; to the development of pre-school human capital formation in order to provide equality of educational opportunity to all children; to provide equality of educational opportunity at all levels of education (including a variety of direct and indirect aid programs and services for students); and to change the school curriculum (emphasis on general education and principles as well as development of problem-solving skills) and pedagogical style (emphasis on flexibility, individualized instruction, independent problem-solving); and to utilize rate-of-return analysis for the efficient allocation of public funds and resources to the educational system as well as between levels within it.

B. Rate-of-Return Analysis to Determine Efficient and Equitable Allocation of Resources

Other policy concerns of human capital theory regarding education which were not implemented in public policy during the 1960's have been accepted in the 1970's. Among some of these changes is the provision of financial aid allocated directly to students rather than indirectly through educational institutions. Another is the reduction in public expenditure on higher education in view of the lower rate of return vis-a-vis elementary and secondary education as well as in view of the socially regressive implications of highly subsidized post-secondary education on the distribution of personal income. Another major change has been the full-fledged acceptance of continuing and recurrent adult education. This is due in part to the increasing social demand for higher education (which itself is partly responsible for the democratization of secondary education in Canada and Western Europe as well as partly a result of that process). Social demand for higher education has been high in the United States since World War II.

Acceptance of recurrent education as part of the post-secondary education system is yet another example of the important structural changes taking place in post-secondary education since the 1960's. A more comprehensive post-secondary educational system has been evolving in the 1970's, "...based on new structures designed to promote diversity and permitting much greater flexibility than has hitherto been possible" (OECD, 1970Bb:96).

It also reflects a movement away from the emphasis in education on youth. Recurrent education as an alternative for achieving equality of educational opportunity has been adopted. Adult education has been incorporated into national strategies to develop human capital and provide for equality of opportunity. Louis Emmerij (OECD, 1970Bb:66) states that

> Recurrent education would be instrumental in meeting the objectives of equity, occupational flexibility, and integration of education with active life. This last objective should be noted in particular. With the steep increase in enrollments and the average time the individual remains in the educational system, the dichotomy between the educational sector and the other sectors of human activity, and between educational span and the active working life of the individual, has become so marked as to raise serious social problems. An educational strategy which would diminish the existing distinction between education

> and other socio-economic sectors would at the same time diminish the dangers of a growing irrelevance of one system to the other and, eventually, of a growing gap between the younger and the older generations. As such, recurrent education, also because its introduction would imply much more stress on individualization, appears promising...

Papadopoulos (OECD, 1970Bb:97) sums up:

> By spreading out the formal educational period over the later years of life, recurrent education would have serious implications not only for the structure, content and teaching methods of the present secondary and higher education systems but also for the organisation and practices of industrial firms and other employers who would see a significant portion of their personnel return to full-time education. In thus reducing the dichotomy between active life and education and in giving adults a "second chance" in education, recurrent education would help bring about greater occupational flexibility, social equality, individual satisfaction and understanding between generations. It could therefore represent a major alternative strategy in educational policy in the years to come with far-reaching consequences for the development of the educational system and of society as a whole.

Thus, having established comprehensive secondary education, we are now establishing comprehensive post-secondary education in the developed countries.

At about the same time that recurrent education was being introduced in the developed countries, the concept of non-formal education was cautiously being discussed in the underdeveloped countries. After more than a decade of pushing for universal elementary education (100% enrollment), most underdeveloped countries were unable to carry the financial burden (exasperated by lack of international aid to elementary education during the 1960's) and were discouraged by the rising number of illiterates. Despite a lowering of the illiteracy rate, there was an increase in absolute number due to high rates of population increase and the very high ratio of youths to adults (40%-50% in many underdeveloped countries).

UNESCO Regional Conferences on Education held in Karachi (1960), Beirut (1960), Addis Ababa (1961), Santiago (1962), Tokyo (1962), Bangkok (1965), Buenos Aires (1966), Tripoli (1966), Vienna (1967), Nairobi (1968), and Marrakesh (1970), all placed prime importance on reaching universal elementary enrollment by 1970 or 1980.

Most underdeveloped countries allocate 20%-25% of all their expenditures on education and it is virtually impossible for them to spend more. Thus, cost is one important factor.

Another is the question of equity. With between 40%-70% of all elementary school-age children enrolled (and with extremely high drop-out and repeating), equity is a real problem.

Other, perhaps more immediately compelling, reasons are the high unemployment rates of the educated and partly-educated as well as the seeming irrelevance of education to the social, political, and economic realities in underdeveloped countries (Bacchus, 1979A:3-6).

Since the poor in underdeveloped countries are mainly rural and constitute 70%-80% of the population, it appears that the existing educational system is not serving the needs of that population, nor of development (Bacchus, 1979A:7).

The publication of Coomb's The World Educational Crisis in 1968[7] crystallized world attention, especially that of experts in the developed countries, on the failure of existing policies and the need for a wholesale revision.

As already indicated, the World Bank and other international development aid agencies provided aid to education in underdeveloped countries since the early 1960's. However, their emphasis then was on aid to higher education and secondary schools to educate professionals and technocrats as well as to train middle-level skilled workers and technicians for the modern sector of the economy.

Since the World Bank "...has what is probably the largest fund for employing specialists and consultants" and "(i)ts files contain by far the most information (including confidential intelligence) about educational systems (i)ts sector papers will be widely interpreted as offering well-grounded and theoretically up-to-date assessments of policies for change in many sectors..." (Williams, 1976B:15). In other words, policies developed by the World Bank have had tremendous influence on underdeveloped countries both negatively and positively and those policies have not been in tandem with some of the development objectives of the underdeveloped countries themselves — especially as we have shown in regards to educational policies of the 1960's.

There was a total re-orientation of development strategy by most donor agencies after 1971 (Williams, 1976B:47). The World Bank issued an Education Sector Working Paper in 1971, followed by another in 1974. There was a prevailing focus on the equity issue and access to the educational system in order to move towards equality of educational opportunity in the underdeveloped countries.

Robert S. McNamara, President of the World Bank, made this major policy shift clear in an address to the Governors of the World Bank Group in Nairobi on September 24, 1973 (Williams, 1976B:47).

> Disparities in income will simply widen unless action is taken which will directly benefit the poorest. In my view, therefore, there is no viable alternative to increasing the productivity of small-scale agriculture if any significant advance is to be made in

> solving the problems of absolute poverty in the rural areas.
>
> The absolute poor are not merely a tiny minority of unfortunates -- a miscellaneous collection of the losers in life -- a regrettable but insignificant exception to the rule. On the contrary, they constitute roughly 40 per cent of the nearly two billion individuals living in the developing nations.
>
> Some of the absolute poor are in urban slums, but the vast bulk of them are in the rural areas. And it is there -- in the countryside -- that we must confront their poverty.

Between 1972 and 1974, the proportion of World Bank aid to education was distributed 11:48:41 between elementary, secondary, and higher education. In 1974, there was an intensification of the policy, with educational aid allocated by the World Bank distributed 27:43:30.

In 1975, the World Bank issued the Rural Development Sector Policy Paper in which the following statement appears on page 3 (Williams, 1976B:47):

> Education systems have been irrelevant to the needs of developing countries during the last two decades because education policies were often keeping company with over-all develop-strategies which were themselves irrelevant. Emphasis on the development of the modern economic sector, providing employment to a small and intensively trained elite, leads to the neglect of the 60-80 per cent of the population living in sectors characterized by traditionally lower productivity.

Sheffield (Williams, 1976B:47) lists five basic issues which shaped this policy shift. Thus, the changes envisaged were:

> ...(a) the development of functionally relevant skills, integrated with over-all development strategies; (b) mass participation in education and development through the integrated use of

> expanded primary schooling and complementary non-formal education programmes; (c) greater equity through equalizing educational opportunities and linking these to broader social policies; (d) increasing efficiency by defining objectives more specifically and making qualitative improvements to reduce wastage; (e) improving management and planning including changes in the organization and finance of educational systems.

Thus, the shift from higher education, secondary education, and technical training for a relatively small elite to "basic education for the rural masses" which took place in the educational policy of aid agencies in the developed countries has been completed by 1974. The World Bank defines basic education as

> ...an attempt, despite severe resource constraints, to meet the needs of substantial portions of the population who do not have access to even minimum educational opportunities. It is a supplement, not a rival to the formal education system, and is intended to provide a functional, flexible, and low-cost education for those whom the formal system cannot yet reach or has already passed by. Although the primary cycle may be its principal vehicle in many countries, it differs from the conventional concept of "universal primary education" in three major aspects:
>
> (i) the objectives and content of basic education are functionally defined in terms of "minimum learning needs" of especially identified groups, and not as steps in the educational hierarchy...
>
> (ii) the "target groups" of basic education are not necessarily school-age children. they may vary according to age, and socio-economic characteristics...
>
> (iii) the "delivery system" of basic education will take different forms in different countries (restructured primary schools, non-formal programs, or various combinations of the two) adopted to the needs of different clienteles

and to constraints upon resources (Williams, 1976B:48).

This shift in emphasis to basic education for the rural masses has led educators and politicians to seriously consider non-formal education as a viable supplement, if not outright alternative, to existing efforts.

International conferences and reports of agencies reiterate this focus on basic education for the rural masses, including the UNESCO Faure Commission (1972B), the Bellagio Conferences (1972, 1973, 1975), US-AID commissioned studies by the African-American Institute and Michigan State University (1972, 1973), UNESCO Conference in Nairobi (June 1974), UNESCO/UNICEF Conferences in Nairobi (August and October 1974), and the Canadian International Development Research Centre's commissioned study review of education and development (1974). There was also a Commonwealth Specialists Conference on Non-Formal Education for Development in New Dehli, India in January 1979.

The entire structure, organization, content, and method of educational systems were being questioned. Human capital economists stress the balance of maximum economic efficiency with equity. In view of the scarce resources available in most underdeveloped countries and the fact that significant proportions of the population are illiterate, it is much more difficult for underdeveloped countries to make such decisions than it is for the developed countries.

The same shifts occurring in educational policies of developed countries in the 1970's, discussed above, were also occurring in the underdeveloped countries -- only the relative and absolute differences in provision, quality, and equity of the educational systems as well as in the distribution of personal income and the differences in life chances between regions, race, classes, sexes, and ages are astronomical.

The effects of some policy proposals on underdeveloped countries, likewise, are quite different than on developed countries. One example is the policy of lowering, if not eliminating, public subsidization to post-secondary education. This is part of the more recent attempt to be more efficient in the allocation of public resources to education.

As Porter, et. al. (1973B) point out, unless rising private costs of post-secondary education are balanced with a comprehensive financial aid scheme to provide grants to students from low-income families, the results are highly regressive and defeat the equity goals behind the removal of subsidies.

Schultz[8] (1970A) insists that just as the full cost of education at the post-secondary level should be private, not publically subsidized, those students from low-income homes should receive grants to enable them to attend. Students from middle and high-income families should be able to borrow money for education in the same way that they can borrow money to obtain consumer goods or physical capital.

Schultz (1970A:64) and other human capital economists disagree profoundly with the conclusions of the Carnegie Commission on the Future of Higher Education that universal college education (though not universal attendance) is a right and a necessity for the provision of equality of educational opportunity because it would require a "...vast increase in public funds which would not be neutral in its effect on the distribution of personal income."

Inequalities in the distribution of personal income are much greater in the underdeveloped countries than in the developed ones. Mark Blaug (1967, quoted in Williams, 1976B:77) observed that

> The striking fact about underdeveloped countries is not so much their low level of income per head, but rather the extreme inequality in the distribution of nearly everything: income, population, education, housing, health, and the like. Not only is income per head more unequally distributed than in developed countries, but regional variations in income within national boundaries far exceed anything found in Europe or America.

Reduction in public subsidies to higher education in the underdeveloped countries by itself would not have much effect on the situation. A switch in emphasis from higher education to elementary and pre-school human capital development would be more efficient and more equitable from the point of view of human capital economists.

The World Bank Workshop on the Economics of Education held in Washington, D.C. in October 1973 dealt with precisely these issues. Marcelo Selowsky[9] presented a paper at that workshop entitled, "A Note on Preschool-Age Investment in Human Capital in Developing Countries" in which the opening paragraph is a quotation from Jencks' (1972B:256) study on inequality.

> It is true that schools have "inputs" and "outputs" and that one of their nominal purposes is to take human "raw material" (i.e., children) and convert it into something more "valuable" (i.e., employable adults). Our research suggests, however, that the character of a school's output depends largely on a single input, namely the characteristics of the entering children. Everything else -- the school budget, its policies, the characteristics of the

> teachers -- is either secondary or completely irrelevant.

The poor performance of children from poor families in underdeveloped countries is rooted in physical (nutrition and health) as well as more intangible (social, psychological) factors. Therefore, these physical factors must be dealt with if these children are going to achieve in school, or for that matter in society.

> The "economic problem" becomes therefore how preschool-age investment in human capital can contribute to a "least cost solution" in the production of cognitive and noncognitive skills at adult age (Selowsky, 1976B:709).

The main problem appears to be lack of resources to adequately provide a program of pre-school human capital development in the poor countries. Educational programs for mothers with emphasis on nutrition and child-rearing practices appear to be the most needed; however, such programs have not been developed in all poor countries and the ones which do exist are not available to all who need it.

Bacchus (1979A) points out that non-formal education has been tried in various poor countries but has only been relatively successful in those few countries which have also instituted radical structural changes in the economy and social structure to drastically reduce the inequality in the distribution of personal income.

The ruling elite in most underdeveloped countries reject the idea of shifting resources from the formal educational system (especially academic secondary education and higher education) and the modern sector of the economy to non-formal education and the rural sector of the economy (Leys, 1975B:258-271).

What really seems to be occurring in the 1970's in the poor countries is experimenting and small-scale innovating in education, with continued emphasis on elementary education and with more international aid given to elementary level education.

As already discussed above, there has been dramatic growth of pre-school education in Canada and Western Europe and an extension of it in the United States (OECD, 1970Bb:94).

In terms of educational policy per se, the aim of national governments' educational policies during the late 1960's in Western Europe and North America was to reach the goal of equality of educational opportunity. Reforms in the organizational structure, contents, and methods of schooling were all part of their over-all strategy (OECD, 1970Bb:14).

While public policy in general, and educational policy in particular, has become increasingly programmatic and comprehensive since the mid-1960's, it has also been narrowly quantitative and reactive. A basic assumption has been that the future would not differ much from the present, that the economy would continue to grow as would the need for more highly educated manpower.

In the late 1960's and 1970's, the economies of most developed countries experienced a severe downswing. The contraction seems to be long-lasting and so the large proportion of public budgets ear-marked for education are increasingly being viewed as an expense we cannot afford. There has been a renewed surge of interest in economic efficiency within the educational sector.

The fiscal crisis of the state has forced governments to cut down on government spending. A general drop in the standard of living for many people has shaken popular belief in education as a vehicle for social mobility and economic growth. A general feeling that subsidized education has benefited the wealthy at the expense of the poor has meant less public resistance to major cuts in public subsidies to post-secondary educational institutions.

Schultz has been urging such changes for reasons of economic efficiency and social welfare as well as equity for many years. The regressive effects of public subsidies to post-secondary institutions on the distribution of personal income and the resulting increase in inequality has been documented by Hansen and Weisbrod (1969A, 1969B) in their studies of post-secondary education in California and Wisconsin.

The reduction of public subsidies to higher education would bring the treatment of human capital in line with that of non-human capital. Physical capital formed by public investment is not transferred to particular individuals as a gift -- neither should public investments in human capital be transferred to individuals as a gift, according to human capital economists.

Schultz (1970A:57) states that "...the ideal price for the educational services that students obtain should be neither more nor less than the real cost of producing these services." Removal of subsidies would dramatically increase the private costs. Since Schultz says that prices should reflect the true cost and quality of education, prices will vary between institutions. The development and dissemination of better information about post-secondary programs and institutions is a necessary prerequisite for rational decision-making. A national information disseminating service should co-ordinate and publicize information and services provided by the institutions. Schultz also stresses the need for counselling services within educational institutions to become more aggressive and "public".

In order to ensure and promote equality of educational opportunity, loans and grants have been made available by governments. This has become particularly common in the United States during the 1960's and in Canada during the 1970's.

Loans, grants, and other measures of financial aid were made available to able students who would otherwise not be able to attend university on a national level by the National Defense Education Act of 1958 in the United States. It marked the first whole-sale involvement of the federal government in education. Since then, changes have been made to promote equality of educational opportunity and later equality of educational achievement between groups. The earlier programs were designed to provide financial help to needy high achievers. Later programs were designed to help poor children increase their achievement and continue their education.

Schultz has been pressing for the development of a program of loans and grants to students from low-income homes to reimburse them for the increasing costs of post-secondary education. Students from middle- and high-income families should be able to borrow money for education in the same way that they can borrow money for material goods. Loans should, according to Schultz (1970A:55) "...rest on the level of the income stream of the family..." and even though this is "...still in its infancy..., with the relatively high level of income of so large a part of U.S. families, it carries considerable promise." Tangible assets of students' families' could also be held as collateral on student loans.

The public debate about what kinds of changes to the educational system are desirable and practical continues. Educational policies during the past three decades have been profoundly influenced by human capital theory. The transformation of the educational system from a restrictive, elitist model to an open, mass model occurred in a very short time period. Acceptance of the idea that schools produce capital rather than consume it marked a definite shift in public policy and social science research which has been attributed to the efforts of Theodore W. Schultz in developing human capital theory. Whatever the current disagreements about public policy, concern for efficiency and equity are now integral to the discussions. Human capital economics has indeed permeated public policy decisions regarding education and social welfare as well as social science research around the world. Schultz's acceptance of the 1980 Nobel Prize in Economics is symbolic of the influence of human capital theory.

CHAPTER III

Footnotes

[1] Dershimer was Executive Director of the American Education Research Association.

[2] This included non-residents but does not include Canadians studying abroad.

[3] Excluding the People's Republic of China.

[4] According to UNESCO (1972:50), "22% of the world's children under 15 are in developed countries; 78% are in developing countries."

[5] In attempting to provide equality of educational opportunity in the United States, the issue became clouded with the question of race and ethnicity. It was generally believed by parents and experts alike that the problem was one of racial and ethnic segregation and that the solution was racial and ethnic desegregation -- when in fact, the problem was really one of class. When working class white children were integrated with poor black children, academic achievement of both groups remained low. However, when poor black children were integrated with middle class white children, academic achievement of the poor black children rose. With the average ethnic minority (except of Orientals) scoring as much as one standard deviation below the majority students' test scores in grade one, the gap in academic achievement between non-Oriental ethnic and racial minority children and white middle class children gets larger through to grade twelve. Unfortunately, many of the desegregation orders were between poor white and poor black neighborhoods. It has also been established that poor quality schooling has greater dampening effects on academic achievement of working class children than it does on those from the middle class (Gordon, 1974A:179).

[6] Education in Europe and most Third World countries is very centralized, controlled by the national government. However, education is under state control in the United States and provincial control in Canada. Education is even more decentralized in the United States, with local school boards having autonomy and control over local schools.

[7] This was preceeded by the Kericho Conference on Education, Employment, and Rural Development, held in Kenya in 1966 as well as the World Crisis in Education Conference held at Williamsburg, Virginia, U.S.A. in 1967. The publication of Education for Self-Reliance by Julius K. Nyerere in 1967 represents the first major policy statement in this direction, as well as one of the few policy statements developed by a Third World country rather than an aid agency in the developed countries. Philip Coombs, Director of the International Council for Educational Development, has had a key role in influencing "experts" in other

development aid agencies to shift emphasis to basic education for the rural masses and away from higher education and academic secondary education for a minority elite.

[8] Schultz's position is based on the conclusions of studies done by Hansen and Weisbrod on higher education in California and Wisconsin and its effects on the distribution of personal income.

[9] This was subsequently published in Economic Development and Cultural Change, Vol. 24, No. 4, July 1976:707-720.

CHAPTER IV

THE TECHNICAL-FUNCTION THEORY OF EDUCATION: THE RELATIONSHIP BETWEEN EDUCATION, OCCUPATION, AND LABOR INCOME FROM THE PERSPECTIVE OF SOCIOLOGY

A. Introduction

The dominant paradigm in all the social sciences in the 1950's was functionalism. This was true for sociology as it was for economics. Sociology in North America, as well as in France, Germany Scandinavia, and Japan, was dominated by Parsonian structural functionalism. The most popular version of structural functionalism in the sociology of education during this period was technological functionalism. This school of functionalism stressed both the technical function of education and the efficient use of human resources. Thus, the technical-function theory of education, a subtype of the structural functionalist theory of stratification developed by Davis and Moore (1945A), provided the theoretical framework for sociology of education. The two main premises of the functional theory of stratification, which it shares with the technical-function theory of education, are: 1) "that occupational positions require particular kinds of skilled performance; and 2) that positions must be filled with persons who have either the native ability, or who have acquired the training necessary for the performance of the given occupational role" (Collins, 1971A:1004).

More specific to the technical-theory of education are the premises that: 1) knowledge and skills required for job adequacy in modern, industrialized societies are increasing due to continuous technological advances. This results in an increasing proportion of occupations requiring a high level of knowledge and skill accompanied by a decreasing proportion of occupations requiring little knowledge and skill. In addition, the amount of knowledge and skill required for a given occupation increases over time; and 2) increased levels of formal education are required to provide workers with the training in specific skills and general capacities necessary for job adequacy, especially in the more highly skilled jobs; and therefore, 3) educational requirements for occupations are constantly increasing and so people tend to spend more years in institutions of formal schooling (Collins, 1971A:1004).

Advocates of technological functionalism assert that there have been significant, fundamental structural changes in the social division of labor of industrialized societies since World War II which have been determined by technological advancement and which have resulted in increasing differentiation, specialization, and hierarchization of the labor force in the occupational structure as well as in all social institutions. At the same time, increased government involvement in and control over socio-economic institutions has also grown considerably.

Industrial innovations (including increased size and complexity of industrial and commercial firms) were said to be responsible for the tremendous upgrading of the labor force since World War II -- the increase in the number of jobs requiring more knowledge and skills, great expansion of white collar occupations in general, and for the increase in the number of technical and professional jobs. For example, in 1941, 25.2% of the Canadian labor force was employed in white collar jobs. By 1961, this percentage had increased to 38.6%. The increase in number of workers employed in professional and technical occupations was less impressive -- from 6.7% in 1941 to 10.0% in 1961 (Rinehart, 1975B:84). During the 1940's, for the first time in Canadian history the percentage of workers employed in manufacturing exceeded the percentage employed in agriculture (Ibid.:50). It was this tremendous expansion of white collar occupations, however, which created a great deal of social mobility and with it the renewed belief in the popular idea that education is the great equalizer -- through schooling, everyone would be made equal (or at least less unequal).

These socio-economic changes in occupations and in the occupational structure were viewed as the inevitable outcome of technological change. The question of what causes technological change, however, is ignored. Clark Kerr, et. al. (1964B) present this viewpoint of technological determinism in their book, Industrialism and Industrial Man. As Rinehart (1975B:21) points out, proponents of technological functionalism

> ...almost always attributed to sophisticated technology...centralization of knowledge and authority and a detailed division of labor... [and that] a given level of technology...bears organizational imperatives that operate independent of the social, economic, and political milieu in which technology is embedded.

Thus, technological determinism fosters the idea that the (interrelated) processes of industrialization and bureaucratization inevitably mold all societies along a unilinear development path. One result of this evolutionary process is that the social division of labor is "de-socialized" into simply a technical division of labor (Johnson, 1976A:6). Social classes are transcended and society becomes more "open" and "fluid" and "mobile" -- classless. Differences between the socialist and capitalist countries dwindle to the point of convergence. There is an end of ideology. This is referred to as the Convergence Theory.

The technical-function theory of education, then, basically states that as a result of technological innovations, there is a need and consequently a demand for increased cognitive and technical skills in most occupations. Therefore, educational requirements for most occupations are also rising. Thus, the phenomenon of rising educational qualifications required for most occupations is seen as an inevitable result of modern industrialization and bureaucratization (experienced in the socialist as well as the capitalist countries).

It is therefore posited by the technical-function theory of education that cognitive and technical skills needed by workers are learned in school and that the acquisition of them will make those workers more productive than their less-educated counterparts. These are very important premises of the theory. Thus, expansion of the educational system, especially at the tertiary level was seen as "functionally" necessary during the 1950's to provide workers with knowledge and skills required for job adequacy in a rapidly expanding and changing economy.

Technological functionalism provided the framework for much of the sociology of education research done in North America during the 1950's and 1960's. With its stress on the maximization of talent in the allocation of individuals to the occupational hierarchy, technological functionalists criticized the existing system of education as elitist. It formed part of the liberal criticism of conservative ideology and policies which dominated the system of education in Western Europe and North America prior to the late 1950's. The basis of the liberal criticism is that elitist systems of education are technically inefficient because of the wastage of talent from the lower classes. Furthermore, liberal argument claimed that gross social inequality was neither rational nor just in times of fierce technological and scientific competition with the Soviet Union. Formal education, according to the functionalist argument, needed to be assigned an important role "...in the evolution of industrial, and particularly American, societies from particularism and ascription to universalism and achievement" (Murphy, 1979B:13).

So, by the late 1950's, one witnessed the traditional conservative conceptions of society coming under heavy criticism and a revitalizing of classical liberal notions of equality of opportunity and equalization of life chances. Conservatives, who believe that any society has only "...a limited pool of educable ability" (Karabel and Halsey, 1977B:9), and that social inequality is the natural and inevitable outcome of socially significant, genetically determined differences in intelligence between individuals (manifested in rigid class lines), lost ground to liberals during the 1960's -- but not without prolonged, heated public debate.[1]

The concern over availability of talent and its utilization, although it had been the subject of empirical research since World War I, took on a sense of urgency with the development of the Cold War in the 1950's and the subsequent ideological competition between the Western capitalist countries and the Soviet Union. It was the launching of Sputnik in 1957, however, which threw the West into a virtual race against time to upgrade the North American labor force as well as reassess and reorganize the educational system.

Consequently, new national and international surveys were undertaken during the 1950's to ascertain what the "available pool of talent" was and how to maximize the development of talent as efficiently as possible so that workers would be as productive as possible and the national growth rates would be as high as possible in attempting to catch up with the Soviets. However, even before the on-set of the Sputnik era, interest in the maximal development of human resources had surfaced in North America, and the Commission on Human Resources and Advanced Training was appointed in the United States in 1949 to sponsor such a national survey. The results were published in 1954 by Wolfle. Similar studies done during the 1920's, 1930's, and 1940's in Europe were re-examined and used for comparison purposes (Husén, 1975B).

The conservatives, who supported elitist educational philosophy, urged a "...more rigidly administered system of ability grouping" (Sexton, 1961B:XIV), all educational resources spent on the development of an ability elite, and an early segregation of the gifted from the other students. This line of argument is found in Education and Freedom by Vice Admiral Rickover and in Educational Wasteland by Arthur Bestor.

Liberals invoked mass belief in the early American populist and egalitarian tradition (characterized by Jefferson's ability aristocracy and Horace Mann's school as the great equalizer) to call for democratization of higher education.

By the 1950's, the United States had already achieved mass, egalitarian universal secondary education and was approaching the stage of mass higher education. In 1958, the United States Congress passed the National Defense Education Act (NDEA) to provide massive federal support to higher education (Husén, 1974Bb:40). Western Europe and Canada were in the process of democratizing access to secondary education;

higher education was still highly elitist (Ibid.:4).

With the publication of the Coleman Report in 1966, however, the main issue became equality of educational opportunity at all levels of schooling. During the 1960's, with the Civil Rights movement underway in the United States, "...the debate [in the U.S.] focused on the plight of the ethnic minorities and the socially and economically underpriviledged" (Husén, 1974Bb:4). In Western Europe, research on the "reserve of talent" was the result of increased public demand for "...extending opportunities for academic secondary education to lower class children" (Ibid.). In Canada, the educational system was more elitist than egalitarian, though not as rigid as the European system. Higher education was not democratized. According to Porter (1965B:165), the educational system was inadequate to cope with the increasing complexity of the occupational structure in Canada during the 1950's. The Canadian system of education was unable to "...train people in sufficient quality and quantity for occupational roles" (Ibid.). Canada was dependent upon the immigration of skilled manpower because Canadian education was elitist and class-bound (Ibid.:166).

B. The Relationship Between Education, Occupation, and Labor Income as Posited by the Technical-Function Theory of Education and Technological Functionalism in Sociology.

The relationship between education, occupation, and labor income is a very strong, positive one according to the technological functionalist perspective. The functional theory of stratification (Davis and Moore, 1945A) posits a purely theoretical sociological explanation of why some workers receive a higher labor income than others. This, in turn, provides the basis for the technical-function theory of education. Mainstream sociologists traditionally have attempted to explain "...the determination of a worker's wages in terms of the role of the worker's occupation in society" (Stolzenberg, 1975A:645). Davis and Moore (_Op_. _cit_.) attempted to explain the phenomenon of social inequality by arguing in functionalist terms the _universal necessity for stratification in any and all societies_. They assert that no society is (or was) classless or unstratified; social inequality is necessary, functional, and inevitable. This, they insist, is because in all societies there are some positions (occupations) which are functionally more important than others: some require special talent; some require, lengthy, costly training programs; some are more agreeable than others. Hence, societies must develop a system of rewards to induce individuals to fill these positions otherwise there would be a serious scarcity of talented and/or trained personnel for them. These rewards must be distributed differentially according to the functional importance of the position as well as according to the scarcity of talented and/or trained personnel. The conclusion made by Davis and Moore (1963A:48) is that

> (i)f the rights and perquisites of different positions in a society must be unequal, then the society must be stratified, because that is precisely what stratification means. Social inequality is thus an unconsciously evolved device by which societies insure that the most important positions are conscientiously filled by the most qualified people. Hence every society, no matter how simple or complex, must differentiate persons in terms of both prestige and esteem, and must therefore possess a certain amount of institutionalized inequality.

Societies, according to Davis and Moore (1963A:48), have three kinds of rewards which must be allocated differentially to individuals according to their occupation. They are: 1) "...the things that contribute to sustenance and comfort"; 2) "...the things that contribute to humor and diversion"; and 3) "...the things that contribute to self - respect and ego expansion."

What positions (occupations) in society are the most rewarded? Davis and Moore assert that those positions which are functionally important and require scarce talent and/or costly, lengthy training so that qualified individuals are scarce (scarcity of personnel) are the positions which should and must be most rewarded. Otherwise, it will be difficult for "society to fill" them. In the words of Davis and Moore (1963A:49),

> ...if the skills required are scarce by reason of the rarity of talent or the costliness of training, the position, if functionally important, must have an attractive power that will draw the necessary skills in competition with other positions. This means, in effect, that the position must be high in the social scale -- must command great prestige, high salary, ample leisure, and the like.

Thus, according to the functional theory of stratification, labor income is a function of the scarcity of personnel to fill functionally important positions (occupations). Power and prestige, however, are not the results of high labor income.

> It should be stressed, however, that a position does not bring power and prestige because it draws a high income. Rather, it draws a high income because it is functionally important and the available personnel is for one reason or another scarce. It is therefore superficial and erroneous to regard high income as the cause of a man's power and prestige, just as it is erroneous to think that a man's fever is the cause of his disease (Davis and Moore, 1963A:50).

The "purpose" of high labor income, therefore, is to "...induce people to compete for the position" not to "...confer prestige on a position..." (Davis and Moore, 1963A:51).

David and Moore state that most individuals in any society are capable (have the inherent or innate talent) of performing adequately in most occupations. However, there are some functionally important occupations which do require special talent which is scarce. Likewise, there are some functionally important occupations which, while the talent they require is not scarce, require costly, lengthy training which makes qualified individuals scarce. It is those functionally important occupations for which there is a scarcity of talented and/or trained personnel which must be the most highly rewarded. Differential rewards are used to recruit individuals to various occupations. The relative amount of rewards is subject to the laws of supply and demand. The natural scarcity of talent and skills, however, can be artificially manipulated to produce an over-supply or an under-supply which will, in turn, affect rewards.

> ...the efficiency of a stratified structure may be affected by the modes of recruitment for positions. The social order itself, however, sets limits to the inflation or deflation of the prestige of experts: an over-supply tends to debase the rewards and discourage recruitment or produce revolution, whereas an under-supply tends to increase the rewards or weaken the society in competition with other societies (Davis and Moore, 1963A:51).

The relationship between occupation and labor income, according to the functional theory of stratification, is one of functional causality based on the principle of supply and demand. Labor income, then, is a function of one's occupation. The technical-function theory of education provides the technological functionalist explanation of the relationship education has with occupational attainment and labor income. It is asserted that because the knowledge and technical skill requirements for most occupations have been rising, especially since World War II, individuals must spend longer periods of time in school in order to acquire that knowledge and skill. Therefore, it is not the absolute amount of education that an individual has which ascertains what the labor income from a particular occupation will be, but rather the amount of education one has relative to everyone else. That is, when most individuals finished secondary school but only a small percentage went on to higher education, those who went on to higher education had greater chances of employment in an occupation which paid a high labor income.

In general, individuals with relatively high labor income have more education than those with relatively low labor income. It is assumed that special cognitive and technical skills required for job adequacy are learned in school. In accordance with the functional theory of stratification, then, those functionally important occupations requiring costly, lengthy training and/or scarce talent will be the occupations which confer the highest labor income. Thus, one of the primary roles of schooling is to allocate individuals differentially into various occupations in the hierarchical division of labor on the basis of differential achievement and to a lesser extent personality attributes.

C. Equality of Educational Opportunity and the Technocratic-Meritocratic Ideology

The technological functionalist (technocratic) view of production according to which a hierarchical division of labor or ranking of occupations -- in other words, a stratified society -- is universally necessary and inevitable, ties in with what Bowles and Gintis (1976B:105) call the "meritocratic view of hiring". The American Dream of a meritocracy in which everyone, regardless of class or region, would have equal opportunity to develop their innate talents to their fullest, which dates back to the times of Thomas Jefferson, gained official status during the 1950's when the need for white collar workers, managers, technicians, engineers, and scientists was much greater than the supply. For the first time in the history of industrialized societies, there was full-scale social mobility. Many workers up-graded their education in order to benefit from the sudden explosion of employment opportunities. Since educational credentials were becoming the main criterion for employment, governments encouraged workers to do so. In the United States and Canada, for instance, the federal governments devised programs which would pay returned war veterans to pursue higher education.

A meritocratic system was politically popular because, being based on classical liberalism, it wought to replace an "ascriptive aristocracy" with a "natural aristocracy" or an achieved, ability elite. This classical liberalism is a type of Social Darwinism which says that everyone should be treated equally, regardless of class or region. Those who are innately more able and motivated will achieve and be more successful than those who are less well endowed. Compensatory programs for disadvantaged groups as well as a diversified curriculum were definitely not acceptable according to this outlook.

The curriculum must be the same for all individuals through the period of compulsory schooling.

Michael Young (1958B) presents a schematic conceptualization of the meritocracy as M(eritocracy) = E(ffort) X A(bility). Thus, individuals would experience upward mobility or downward mobility as a function of their innate ability and motivation rather than being born into a particular status and class. In a meritocracy, social status and occupation would be achieved on the basis of merit, not ascribed characteristics. "Differential status and differential income are based on technical skills and higher education" (Bell, quoted in Karabel and Halsey, 1977B:607).

The Western European and North American countries embraced the technocratic-meritocratic ideology after the Second World War to ensure that talent necessary for manpower requirements would be identified and developed. The demand for white collar, technical, and professional workers far exceeded the supply. There was general dissatisfaction with the existing elitist system, which seemed to be responsible for a great deal of wastage of talent.

Talented individuals from the lower classes were not achieving in school. Hence, they could not compete for the new job opportunities. Since World War I, there have been many studies done in Western Europe and North America to ascertain the cause of this wastage of talent. Lack of equal educational opportunity for all groups in society was identified as the major reason for this wastage of talent. Studies of educational participation show a direct relationship between a student's social class origin and the amount and type of education received (Husén, 1975B; OECD, 1975Bb vols. 1 and 2; Boudon, 1973B;

Fägerlind, 1975B; Glass, 1954B; Floud, 1956B; Halsey, et. al., 1980B; Goldthorpe, 1980B; Levin, 1976A; and Porter, et. al., 1973B).

With the added stimulus of the Cold War and its consequent competition between the Western capitalist countries and the Soviet Union, there was great concern that gross social inequality and wastage of talent due to elitist systems of education were not technically rational nor efficient. A meritocratic system with guaranteed equality of educational opportunity was deemed necessary to eliminate gross inequality and wastage of talent. Social justice and efficiency, then, would make more talent available to be utilized in catching up with Soviet education and technology.

The technocratic-meritocratic ideology which permeated the social sciences during the 1950's and early 1960's, emerged in the field of education as the liberal theory of equality of educational opportunity. This theory, which rapidly became more of a doctrine in education, like the idea of a meritocracy, stems from classical liberalism.

It is important to understand the relationship between meritocracy and equality of educational opportunity because both accept socio—economic inequality as inevitable and even just. Thus, neither seeks to eliminate this inequality. Rather, the basis of socio-economic inequality is shifted from ascribed traits to achieved ones based on individual merit. Bell (quoted in Karabel and Halsey, 1977B:616) describes the concept of equality of opportunity in general:

> The principle of equality of opportunity derives from a fundamental tenet of classical liberalism: that the individual -- not the family, community, or the state -- is the singular unit of society, and that the purposes of societal arrangements

> is to allow the individual the freedom to fulfill his own purposes -- by his labor to gain property, by exchange to satisfy his wants, by upward mobility to achieve a place commensurate with his talents...
>
> As a principle, equality of opportunity denies the precedence of birth, of nepotism, of patronage, or any other than fair competition open equally to talent and ambition. It asserts, in the terms of Talcott Parsons, universalism over particularism, achievement over ascription. It is an ideal derived directly from the Enlightenment as codified by Kant, the principle of individual merit generalized as a categorical imperative...
>
> Technical skill becomes a condition of operative power, and higher education the means of obtaining technical skill. As a result, there has been a shift in the slope of power as, in key institutions, technical competence becomes the overriding consideration...it is the codification of a new social order based, in principle, on the priority of educated talent.
>
> In social fact, the meritocracy is thus the displacement of one principle of stratification by another, of achievement for ascription.

CHAPTER IV

Footnotes

[1] The debate between conservatives and liberals, however, is still not over — witness the resurgence of conservatism after the publication of Jensen's work and the more recent lack of support for education in the 1970's and 1980's.

CHAPTER V

THE INFLUENCE OF THE CONCEPT OF EQUALITY OF EDUCATIONAL OPPORTUNITY ON EDUCATIONAL POLICIES

The doctrine of equality of educational opportunity became so well entrenched in popular opinion that it quickly became a national myth in the United States during the late 1950's and early 1960's. It became increasingly important in Canada as well as Western Europe. The main target for this in the United States was higher education, which was approaching the stage of mass attendance. This has been referred to as the "massification" of higher education. In Western Europe, the main target for equality of educational opportunity was secondary education, which prior to World War II was extremely elitist. Canada was mid-way between the United States and Western Europe, with problems at both the secondary and post-secondary levels of education. However, during the mid-1960's, it was realized that children from "disadvantaged" ethnic and racial minority groups and from the working class in general did not have the same opportunity for academic achievement as did those from the dominant and middle class. Therefore, concern for equality of educational opportunity became an issue in elementary and secondary schools throughout Western Europe and North America. It was the number one educational policy concern of the 1960's.

A. Revitalization of Classical Liberalism in Education

In pursuing a policy of providing equality of educational opportunity, what policy-makers were ostensibly attempting to do was to eliminate all external barriers[1] to entrance at all levels of schooling. According to this classical liberal philosophy, schooling up to the mandatory level should be uniform and the same for all students and no one should be excluded from free attendance. Furthermore, facilities should be the same between schools. Beyond mandatory schooling, access to further schooling must be limited only by *internal* barriers (i.e., innate ability and motivation). This is what is referred to as equality of educational opportunity in the *formal sense*.

The roots of this educational philosophy based on classical liberalism goes back to the American and French Revolutions. The 19th century writings of Horace Mann, an American educator, provide a good example of how liberals sought to eliminate gross social inequality through schooling. Equalization of life chances was the main goal of the doctrine of equality of educational opportunity as conceived by liberals. Thus, equality of opportunity for social and economic rewards was to be achieved through a more egalitarian system of education. The school was to become the great equalizer.

This classical liberal educational philosophy was revitalized during the late 1950's by the general concern throughout the Western capitalist world (though it was most pronounced in the United States) that a more equitable (but not equal) and just social order was not only morally desirable but absolutely necessary for more efficient production, rapid technological advancement, and economic growth. Decreasing social inequality would also increase social harmony and stability -- which was deemed necessary during the height of ideological and technological competition characteristic of the Cold War. A more educated work force was also believed necessary to raise worker productivity, increase the rate of surplus value, and make a greater rate of exploitation seem the reverse because of greater absolute affluence for all.

Liberals and conservatives alike, being against the idea of direct income transfer from rich to poor, turned to educational reform to accomplish the task of redistributing personal income. Equality of educational opportunity would provide everyone with an equal chance to compete for a piece of the pie. This equal chance to "...develop to the fullest extent of his (her) abilities, and by eliminating priviledge in access to all openings, would mean that inequality and injustice will be abolished" (Patterson, 1978A:22).

Thus, education is viewed as a means of solving problems of gross socio-economic inequality and inefficiency (wastage of talent). The school would be an instrument of social reform -- an idea that goes back to the early 19th century. People, especially in North America, came to believe that education would change the structure of the social order so that it would be more open, create more mobility, and be more egalitarian (Patterson, 1978A:26).

The doctrine of equality of educational opportunity, however, does not seek to substantially change the existing structure of socio-economic inequality found outside the schools. "...(I)t merely seeks to increase the circulation up and down the ladder of success or failure" (Patterson, 1978A:23). The basis of the doctrine is utilitarian in that, by equalizing life chances for everyone, the most competent and qualified will be selected and allocated to the occupations commanding the highest prestige, income, and status; while the least competent will be allocated to those occupations with inferior status, income, and prestige (Ibid.:22).

The proponents of the ideology of equality of opportunity did, however, believe that the proportion of highly rewarded occupations would increase ever more rapidly than the supply of highly educated manpower and that there would be an accompanying drastic reduction in the proportion of unskilled occupations so that there would be a natural redistribution of income resulting in a more egalitarian or less grossly unequal society.

How would this equality of educational opportunity be achieved? Through the relatively new social science of psychology, scientific, objective methods were to be devised and used to measure talent and ability. Thus, the criteria for academic achievement would be ability and motivation as measured by school grades, scores on "objective" tests, I.Q. and other standardized tests, and examinations. Educational counsellors would be important for conducting I.Q. and other standardized tests in order to identify potential talent and channel it into the "educational manpower pool" (Husén, 1975B:74).

Access to formal education beyond mandatory schooling was to be democratized and entrance based on objective and fair measurement of merit (ability and motivation). There was also a move towards universal accessibility to higher education. Thus, success or failure in school would only be the result of individual innate ability and motivation. This has been referred to as the individualization of failure (or success).

According to technological functionalists, one of the primary functions of schooling is to allocate individuals differentially into various occupations in the hierarchical division of labor on the basis of differential school achievement and to a lesser extent on the basis of personality attributes. This allocation is done ostensibly on the basis of differences in achievement and merit -- which are a function of differences in innate ability and motivation only -- and appears to be objective and fair, especially if the idea of equality of educational opportunity for all is accepted by most members of society as the official policy.

This technocratic-meritocratic ideology is the classic liberal response to the traditional conservatives who maintain that social inequality is the natural and inevitable outcome of socially significant, genetically determined differences in intelligence between individuals (manifested in rigid class lines). In other words, conservatives believe that everyone gets what they deserve: there are genetic differences between classes. Liberals, however, do not believe that everyone gets what they deserve because of social structural obstacles to the development of talent. They do not believe that talent is class-bound and so they want all external (socio-economic) barriers to the development of talent eliminated.

This conservative-liberal clash was very pronounced during the late 1950's when it became evident that Soviet education and technology were much more advanced than Western capitalist countries. A debate ensued between advocates of elitist and egalitarian (mass) education. The elitists, like Vice Admiral Rickover, wanted a "...more rigidly administered system of ability grouping" (Sexton, 1961B:XIV) so that the gifted could progress as quickly as possible and not be delayed or discouraged by being in heterogeneous (undifferentiated) classes. Elitists felt that only the more advantaged students should receive more education. Proponents of egalitarian education felt that the harmful effects of elitist educational philosophy (perpetuation of social inequality) more than offset the private gains to individuals so that education, especially higher education, should be viewed as a force for reducing income inequality by providing a means for social mobility for all qualified people, regardless of class.

The liberal cause was helped a great deal by the 1957 publication of a study on Soviet education by the United States Office of Education which stated that Soviet education was more productive than American education and that the Soviets did not separate the gifted from other students. I.Q. tests were not used in the Soviet Union because the Soviets claimed that intelligence is a product more of environment than genetics. As Patricia Cayo Sexton (1961B:XVIII) stated, "...the worker's child in the U.S.S.R. has twice as good a chance of going to college as his U.S. counterpart (Harvard Education Review, Spring 1957)..."

Thus, liberals were saying that

> an industrial society, if it is to grow at top speed, as ours must, should call on the full intellectual potential of all the people in that society -- not just those in Rickover's ability elite. It must, in other words, engage in all-out mass education, with full equality of opportunity extended to all students. This our nation [the U.S.] has failed to do (Sexton, 1961B:XVIII-XIX).

Sexton (1961B:XIX) goes on to state that "(t)he knowledge, understanding, and participation required to reach democratic goals and efficiency, and the skills required for peak industrial performance, remain in very large part latent and underdeveloped."

In her call for a new approach to education, a discarding of elitist education, Sexton (Ibid.:XX) sums up the liberal support of egalitarian education in stating that

> ...perhaps then we can mount an educational assault which will be democratic and at the same time effectively competitive with Soviet authoritarian education. Through mass education, perhaps we can break down some of the walls of class and status...which seem totally out of place in a democratic egalitarian society such as we want ours to be. With the removal of these barriers, perhaps we can make a closer approach to the greatest of all democratic dreams -- equal educational opportunity for all, without regard to race, religion, class, or status.
>
> This is the Dream.

In the United States, the primary focus of educational policies reform during the late 1950's and early 1960's was to provide equality of educational opportunity at the level of higher education and to build strong graduate schools (Clark, 1976Aa:123). Having already achieved mass, universal secondary education, the United States began pursuing a policy of democratizing higher education and moving towards universal, mass higher education. A college education was becoming a prerequisite for middle level office and technical workers. Physics, math, and engineering programs were expanded and promoted in an effort to "catch up" with the Soviets. Consequently, in 1958 with the passing of the National Defense Education Act (NDEA), the United States launched a program of massive financial support for higher education to ensure that talented individuals, especially those from "disadvantaged" backgrounds, would be able to pursue higher education.

In the 1961 presidential address to the American Sociological Association, Robert Faris (1961A:839) stated that institutions of higher education have become

> a potent instrument for raising the ability level of the population...What is happening... is that the nation is quietly lifting itself by the bootstraps to an importantly higher level of general ability -- an achievement which, though less dramatic than a space voyage to the moon and less measurable than the Gross National Product, may mean more to the national future than either.

Thus, there are three separate sets of phenomena which created a virtual explosion in mass demand for higher education in North America after World War II, ultimately leading to the dramatic expansion in post-secondary education witnessed during the 1960's. One is the shift in the occupational structure, creating demand for professional and paraprofessional workers. This resulted in massive up-grading of occupations and inflation in educational credentials. This was further complicated by the educational benefit schemes extended to returning war veterans in Canada and the United States. Many attended universities, obtained jobs with high salaries and status, and served as models for young people -- reinforcing their mobility aspirations and belief in education as the vehicle for social mobility.

B. Baby Boom - The Demographic Factor

The second factor in explaining the expansion of education during the late 1950's is the post-World War II baby boom. The sudden increase in population put pressure on the educational system to expand -- build more schools and train more teachers. By the 1960's, when these youngsters were ready to attend university, there was a virtual explosion in the demand for teachers and professors.

C. Sputnik Syndrome - The Ideological Factor

The third factor is the "Sputnik syndrome" — the competition with the Soviet Union during the Cold War era, as already discussed.

Although education is a state responsibility in the United States, the Congress passed eight major federal aid programs for undergraduate college and university students between 1958 and 1965. Such measures certainly illustrate the urgency and importance attached to educational reform by the United States government. These programs provided indirect and/or direct payments to students, scholarships, fellowships, subsidies, loans, work-study jobs, and tax benefits in an effort to equalize access to higher education for all groups (Finn, Jr., 1976/77A).

The long-term policy for higher education in the United States, then, was to push for universal, mass higher education during the 1960's. The fact that women, members of subordinate groups (especially blacks), and working class people were disproportionately under-represented in higher education led to policies of positive discrimination (affirmative action) for such groups as well as additional "compensatory" programs. The United States government set "targets" or "goals" for ethnic groups' representation in higher education during the mid-1960's (Riesman and Grant, 1973A:310). Fixed requirements for undergraduate and graduate programs were more often than not dropped and more "relevant" courses and programs were added to the post-secondary curriculum. Black Studies, Women's Studies, Independent Studies, and Ecological and Environmental Studies are examples of such new developments.

The two main educational policy objectives in Western Europe during the 1960's were to abolish structural parallelism and to achieve universal mass secondary school attendance. The dual system of academically-oriented and vocationally-oriented secondary schools was considered detrimental to the academic achievement and subsequent social mobility of talented working class students. The trends towards one system of comprehensive secondary schools and universal mass attendance which started during the 1940's, became a political issue during the 1950's with great popular support. The enrollment growth rate for secondary schools in Western Europe rose more rapidly relative to the United States (which had already achieved universal, mass secondary school attendance) right into the 1970's (Husén, 1974Bb:84).

The two main obstacles to the achievement of equality of educational opportunity in Western Europe were the early selectivity and the lack of openness of the educational system. In most of Western Europe, students are channeled into different types of schools at about the age of eleven years. Once in a non-academic program, the students are unable to get into an academic one. The proportion of working class students in vocationally-oriented schools is high, whereas it is very low in the academically-oriented schools. Concern for the "wastage of talent" as well as social justice prompted governments to introduce policy changes aimed at reversing this loss of talent, making schools more efficient and just. Providing equality of educational opportunity entails eliminating as many of the conditions and structures which impede its realization as possible. In the words of Torsten Husén (1974Bb:142):

> The greater the selectivity which allegedly promotes academic excellence, the more the opportunities among low status pupils to move ahead in the system are reduced. The more strict the requirements of access, promotion, examination, etc., the more biased the system is against lower class pupils.

The abolition of the dual system and its replacement with comprehensive secondary schools was the goal. However, although many schools were converted to the comprehensive type, remnants of the dual system still linger. The changeover has not been complete and there is some support for the dual system which has not been overcome. As Husén (OECD, 1975Bb vol. 1:334) has remarked,

> (t)he two systems have emerged from certain historical and social conditions; the compulsory, elementary school being a product mainly of the 19th century industrialization, and the academic secondary school with a long tradition going back to the Middle Ages preparing for the learned professions. This dualism is a product of a society that was almost entirely ascriptive in its allocation of social status. The selection and/or transfer at an early age to academic secondary education by and large determines the subsequent occupational career; decides whether it will fall within the blue collar or white collar bracket. The built-in flexibility is almost nil.

Thus, in Western Europe, the focus of educational policies aimed at providing equality of educational opportunity was on secondary education. The model used was the American high school. Consequently, by the mid-1960's, in attempting to promote equality of cognitive attainment by social class (OECD, 1975Bb vol. 1:437), secondary curricula were made more flexible and open so that no one would be precluded from academic ("mainstream") secondary education. A diversity of optional courses unrelated to one's academic performance were included in the curriculum (Ibid.:334-335).

Canada falls somewhere between Western Europe and the United States in terms of the development (its structure and content) of its school system. Like the United States, and unlike some Western European countries, education in Canada is not a federal responsibility; it is under provincial authority. However, like the United States, the federal government became involved directly as well as indirectly in education during the late 1950's and 1960's.[2]

During the 1950's, the educational system in Canada was elitist and unsuited to meet the needs of the rapidly changing and expanding occupational structure. Consequently, Canadians had not been trained in sufficient numbers to fill professional, middle management, technician, and skilled worker occupations. Therefore, according to John Porter (1965B), there has been minimal social mobility for Canadians and the society has remained relatively conservative, class-bound, and elitist.

The demand for professional, technical, and other highly skilled manpower in Canada since World War II has been met by heavy immigration. According to Lawr and Gidney (1973B:239), between 1953 and 1963, just over 80,000 such workers immigrated to Canada, three-fifths of them being British. Thus, "(t)he dependence on external recruitment has created the illusion of adequacy" of the educational system. "It has also permitted the continuity of class-bound education as exemplified by the classical college system in Quebec and academic collegiate system in Ontario" (Porter, 1965B:166).

Porter (1965B:47) points out that

> (u)nlike the United States and the United Kingdom, Canada had not by the 1960's moved towards the creation of fully democratized education, either in its formal educational systems or through upgrading schemes in industry. Hence, Canadians did not have the same opportunities for upward mobility, either at home or elsewhere, as did populations of these other countries.

In addition to the need for a "modern" educational system more suited to the manpower needs of a post-industrial society, Porter (1965B:49) lamented the lack of mobility opportunity for Canadians:

> The necessity in the 1950's of importing skills from abroad to meet the labor force increment in skilled occupations suggests that Canadian institutions -- particularly educational and industrial -- were not geared to provide mobility opportunities. International migrations which have come with industrialization have been processes of social mobility as well as movements of labor as a factor of production...Where Canadian immigration policy seeks skilled and professional workers as an alternative to educational reforms, mobility deprivation for Canadians continues.

Porter (1965B:168-169) cites social and psychological barriers to equal opportunity in Canadian education and society. These include: economic (mostly the indirect costs of education), family size, regional disparities in quality and quantity of education, and great influence of religion on educational policies. In criticizing Canadian education, Porter (Ibid.:173) states that "...little has been done to remove the barriers imposed by social conditions on the individual's educational opportunity."

Technological functionalist ideas permeate Porter's critique of Canadian education. His main concern is that the educational system be radically restructured to meet the "needs" of the labor market in a "post-industrial" society, with the principle aim being elimination of wastage of talent. "(E)ducational policy could remove from the social environment those conditions which smother ability" (Porter, 1965B:173).

Porter's work in the late 1950's and 1960's represents the modern liberal perspective in Canada. Porter (1965B:167) wanted a meritocratic model adopted in Canada, on the greater societal level as well as within the educational system, so that Canada can become

> ...a society in which the allocation of individuals to social tasks and access to educational resources is determined by ability. Thus two ends are served: the occupational structure will reflect a more rational allocation of ability; and individuals will have the greatest opportunity to develop their talents and make their contribution to the social good. Where those who survive the upper levels of the educational system are less able than many who drop out of it, the investment in educational plant is being wasted and the most valuable resource of human talent is being squandered. A society which refuses to remove barriers to educational opportunity is falling short of the democratic ideal. The principle of equality and the principle of rational use of economic resources thus have a mutually reinforcing function...A system which does not provide equality of opportunity is also inefficient.

By the mid-1960's, Canada was in step with the United States and Western Europe in striving for equality of educational opportunity in the belief that it was a prerequisite for economic efficiency and social justice. Because it was recognized that there were in fact socio—economic and psychological barriers to equality of educational opportunity, much of the educational policy reforms were made at minimizing, if not eliminating, these obstacles.

It was also recognized that so long as socio-economic barriers to equality of educational opportunity existed "...we can speak of a class-determined educational system" and by extension, a class society (Porter, 1965B:172). Thus, because "(c)lass may be a major impediment to Canadian educational systems meeting their social function of supplying the needs of a diversified occupational structure," modern liberals view the elimination of class as an inevitable outcome of our evolution into the "post-industrial" society (Ibid.:179).

Thus, the prevailing idea during the 1960's that various social institutions, but particularly education, were lagging behind -- indeed were out of step -- with the changes in technology and the economy was part of the functionalist paradigm that dominated all the social sciences. The rationale for educational reform was to restore social equilibrium, which would at the same time make society more efficient (and so more competitive with the Soviets) as well as more socially just (and consequently more harmonius).

Porter (1965B:196) reflects these values and concerns when he reported that one of the conclusions of the Paulend study in Canada was "...that two-thirds of the students that went to university were less than brilliant and that one-fifth of those who were brilliant reached university." The fact that "...going to university is largely a result of class and family position, (and) those who receive this training are not always the most intelligent" was perhaps the focal point around which most of the debate and reform in education turned (Ibid.:195).

In concluding this section on changes in educational policies in Western Europe and North America during the 1960's, it is fitting that a Canadian sociologist, John Porter, sum up the dominant argument in the following quotation from The Vertical Mosaic (1965B:197-198):

> ...educational policy cannot be viewed apart from social policy in general, and...educational equality can probably not develop without corresponding advances in other areas of the social system. No society in the modern period can afford to ignore the ability which lies in the lower strata. Whatever may be said about average intelligence and social class the fact remains that in absolute numbers there is more of the highly intelligent in lower classes than in the higher.

> If the principle of efficiency and equality are to be upheld, Canada must be prepared to put a great deal more money into educational research than it has up to the 1960's. Not only could accessibility to educational institutions be greatly enlarged, but efforts could be made to overcome those psychological barriers which cut so many young people off from both the material and the spiritual benefits of education. Without such policies intergenerational continuity of class will remain, mobility deprivation will continue, and external recruitment will still be required to meet the needs of a complex occupational structure.

One of the most important educational policy shifts of the late 1950's was the sudden emphasis on post-secondary non-university education in the United States and Canada. After 1960, community colleges sprang up across North America at a phenomenal rate. In 1960, there were 656 community colleges in the United States and 29 in Canada (Pincus, 1974A:19; Gayfer, 1978B:29). By 1971, there more than 1,100 community colleges in the United States and 119 member institutions of the Association of Canadian Community Colleges (Pincus, Op. cit.; Fleming, 1974B:86). Enrollments, likewise, skyrocketed -- increasing by five-fold in the United States between 1958 and 1973 (525,000 to 2,917,000) and roughly four-fold in Canada between 1961 and 1973 (53,000 to 202,000)(Pincus, Op. cit.; OECD, 1975Bc).[3] The increases have been extremely high in various regions, such as Alberta, where "...the Alberta College Commission estimates the growth in enrolment in college-level programmes from 1964/65 to 1969/70 to have been approximately 130 per cent" (Watson, 1972B:86).

Community college education is aimed at the 17-19 year old group as well as at adults who may or may not have completed high school. It is intermediate between secondary schools and the labor market or between secondary schools and university, depending upon program of enrollment. The traditional 8-4-4 pattern of education was undergoing a conscious restructuring to 8-4-2-2 or 6-3-3-2-2.

Community colleges generally provide three kinds of programs: 1) *academic* - two year, university equivalent general education courses transferable to a university; 2) *technical* - two or three year vocational/technical job-related programs leading directly to employment (primarily in middle level, paraprofessional technician jobs); and 3) *continuing education* - short-term (one week to one year) manpower retraining programs to upgrade skills of unemployed and/or underemployed people; remedial programs to help students develop academic skills in which they are deficient; and in general and recreational courses not necessarily leading to employment or a diploma; and finally, programs to enable students to complete high school equivalency.

Although there is "...great diversity in purpose, program, student population, administrative structure, and philosophical base" between community colleges across Canada, we will generalize using the above-mentioned descriptions (Campbell, 1971B:3).[4]

Community colleges are administered by their own boards (whether appointed or elected) and supported directly through taxes and in some provinces also indirectly through school board grants. Size of community colleges varies from a few hundred students to a few thousand, with optimum size being 2,000 to 5,000 students.

According to Pincus (1974A:19) there are five public goals of community colleges: 1) comprehensive curriculum; 2) open-door admissions policy; 3) convenient location; 4) an attempt to give students a second chance (provide equality of educational opportunity for post-secondary education); and 5) a community orientation. Community colleges are much cheaper to attend than university, having much lower tuition fees and being close to home. They are smaller than universities, offering greater inter-personal contact, more highly structured courses and assignments, and more comprehensive aggressive counselling. The emphasis is on teaching, not research. Teachers are expected to work closely with their students.

Students who attend community colleges tend to have lower high school grades and lower standardized test scores than those who attend universities. They also come from a lower social class. A significant proportion of community college students have been out of high school for ten years, whereas most university freshmen attend directly from high school. About fifty per cent of community college students are part-time students, and about half of the full-time students work more than fifteen hours per week.

Community colleges have been promoted by politicians and educators as providing an increased opportunity for higher education for those students unable or unwilling to attend university. Thus, the expansion of community colleges is viewed as part of the process of democratization of higher education. Distinction must be made here between higher education and post-secondary education. Higher education refers to university whereas post-secondary education refers to a diverse array of institutions and programs for non-baccalaureate study (Medsker and Tillery, 1971B:138). Community colleges offer a variety of non-university programs and courses which are employment directed or for recreation, which, prior to 1960, have not been universally available for adults. In addition, community colleges provide increased opportunity for members of "disadvantaged" groups to pursue higher education, thereby democratizing access.

The sudden growth in community college enrollment is dramatic indeed when compared to the growth rate of university enrollment. While enrollment in American community colleges rose five-fold between 1958 and 1973, enrollment in all other institutions of higher education rose by two-and-one-half times. Furthermore, "(o)ver half of all freshmen in public institutions of higher learning are currently enrolled in community colleges, and some predict this figure will rise to 70% in 1980 in the United States (Munroe, 1972; Chronicle, 1974; Carnegie Commission, 1971)" (Pincus, 1974A:19).

In Canada, full-time undergraduate university enrollment increased two-and-one-half times between 1960/61 and 1972/73 (114,000 to 285,000), whereas full-time community college enrollment rose four-fold from 1961/62 to 1972/73 (53,000 to 191,000) (OECD, 1976B:237; OECD, 1975Bc).

The gap between full-time enrollment at universities and community colleges was narrowing considerably by the early 1970's. Whereas the 1961 full-time university enrollment was one-and-one-half times that of community colleges, by 1975, it was reduced to one-and-one-half times (OECD, 1975Bc).

Although the sudden expansion of post-secondary non-university education is a more important and ideologically more significant development than the expansion of universities in the 1960's, it was the latter on which public attention was focused.

This expansion in Canada was more of a revolutionary nature than the American one, in that the system of secondary and post-secondary education went from small, closed, and elitist to large and open.

3

The transformation of post-secondary education in Canada has had more dramatic after effects on the country than have the changes which have occurred in any of the other Western industrialized countries, including the United States.

To gain a better perspective of the changes in Canadian post-secondary education, as well as secondary education, the highlights of similar developments in the United States and Western Europe during the 1960's and 1970's will be outlined.

This can best be done by examining the attempts made to achieve equality of educational opportunity through successive phases of educational policy shifts in the 1960's and 1970's.

The first phase, which has already been discussed at some length, is the position of the classical liberals. That is, there should be equality of educational resources, curricula, and treatment of individual students with the same measured ability. Access for all children to local schools through the period of compulsory schooling should be guaranteed and free. There should be no differences in school facilities between schools. The belief was that universal accessibility to equal schools was all that was necessary to ensure equality of educational opportunity. This was the view of the late 1950's.

D. Modern Liberalism and Education

By the early 1960's, it had become commonly accepted by politicians, educators, and sociologists that there were children from various "disadvantaged" groups in society who started school with distinct handicaps regarding achievement vis-a-vis children from "advantaged" groups. Thus, in the race for academic achievement, some children were not even up to the starting line when they began school. Many dropped out before completing the period of mandatory attendance. Of those who finished the period of compulsory schooling, many did not graduate nor continue their education.

The consequent establishment of pre-school educational programs with an emphasis on compensatory programs in elementary schools along with the acceptance of counselling programs signalled a shift in educational policy away from classical liberalism and towards the position of modern liberals. In fact, positive discrimination (or affirmative action) through compensatory educational programs came to typify this period. The idea was to bring the children from "disadvantaged" groups up to the same level of achievement as those from "advantaged" groups when they start their schooling.

With this shift in philosophy and policy, the school was "...perceived to be a positive agent for social reform, combatting... patterns of social and economic inequality..." (Pike, 1978/79A:32). Efforts to eliminate, or at least overcome, the psychological and socio—economic barriers to achievement described by Porter became the objective of this stage of educational policy.

The third phase of educational policy shifts in the pursuit of equality of educational opportunity is that of providing educational opportunities for adults. The concept of life-long education, or recurrent education, developed in the early 1970's. Ontario and Alberta were the first to propose this policy shift in Canada with the publication of the Worth Report (Choice of Futures) in Alberta and the Wright Report (The Learning Society) in Ontario in 1972 (Pike, 1978/79A:36). The thrust of this policy is to bring everyone, regardless of age, into the realm of public education.

The resulting trend to eliminate dead-end and terminal programs, and to establish open admission are part of this third phase, which is designed to provide people with a second chance at education. This has rejuvenated adult education at both the secondary and post-secondary levels. The continuing growth of community colleges and adult vocational programs is evidence of this. The success of Athabasca University in Alberta, the Open University in Britain, and adult high schools in Denmark are some well-known examples of this.

By the mid-1970's, the aim of educational policy was to provide equality of educational opportunity from the cradle to the grave, through the use of whatever programs deemed necessary and affordable. The difference is, at least theoretically, that if one does not achieve the first time around, the door is always open to try again. The emphasis was removed from more equal achievement across groups the first time around.

There is another aspect of this last shift in educational policy which has important ramifications for everyone. That is, the emphasis has been shifted from viewing education as an instrument for individual socio-economic reward to a commodity for individual consumption. Higher education is being promoted for the inherent cultural and personal enrichment value. Hence, students are being encouraged to attend post-secondary institutions but not to expect it to lead directly and immediately to employment.

Thus, for the first time in nearly twenty years, the public is being told, by educators as well as by politicians, that post-secondary education will not necessarily have an economic pay-off for the individual. The investment approach to education has been abandoned in favor of the view that education is for consumptive purposes.

E. Disillusionment with Modern Liberal Educational Policies

This latest stage in educational policy is the result of widespread disillusionment on the part of educational experts and the public with the apparent failure of social action programs designed to provide equality of educational opportunity for children from "disadvantaged" groups.

There has been a general reassessment of the approach taken by previous policy and a rejection of the view that the educational system is or can be a vehicle for social change (Pike, 1978/79A:30). Since most of the factors responsible for differential achievement between groups of children lie outside the educational system, changes must be made outside the schools which will allow for equality of educational opportunity for all groups.

The OECD (1976B:39) examiners remarked that "...even the most comprehensive program of in-school efforts has not alone sufficed to eliminate the many-sided forms of disadvantage and inequality of opportunity that children experience." Therefore, it became accepted in educational circles that the school could not provide programs to overcome the many external causes for failure to achieve in school. Family and neighborhood were recognized as the primary influences in socialization.

The realization that inequalities of educational opportunity are based on prior inequalities of condition (income, power, prestige) marked a major shift in educational policy between the second and the third phase of policy development. The logical conclusion of this line of thinking is that if we really want to implement equality of educational opportunity, then inequalities of condition must be reduced through progressive income redistribution and other measures (Pike, 1978/79A:33; National Council of Welfare, 1975B).

The school alone cannot remedy the socio-economic and psychological barriers to equality of educational opportunity; and unless there are radical socio-economic changes reducing inequalities of condition, the school cannot hope to cope with school-related problems of children (such as reading).

This has led to the rise of conservatism in education and in government. If, the current argument goes, the educational system is severely limited in its ability to equalize educational opportunity through various sophisticated programs, then why spend a lot of money on such strategies, especially when the economy is contracting and experiencing high unemployment and inflation.

The "back to basics" movement is an example of such thinking. If all children are provided with quality education in the basics, the results will be better than the previous phase where there were a variety of programs aimed at different groups of children and a lot of options in the curriculum. Parents began to feel that children achieve through learning basic skills and that was being lost in the plethora of "progressive" programs which many parents viewed as "frills".

The fact that education was becoming extremely expensive for the public purse and at the same time not producing any significant change in differential achievement between groups of children provided the basis for public support of cuts in expenditures on education.

With serious unemployment and/or underemployment, inflation, and a contracting economy, governments were faced with a generalized financial crisis. It could no longer afford to devote such large portions of the budget on education. Raising tuition fees for post-secondary education during the 1970's and 1980's is one reaction to this situation.

The change in emphasis of responsibility for achievement in school was shifted from the educational system back to the individual. This third phase of educational policy puts the onus on individuals to "drop-in" to the educational system (whether full-time or part-time) if they have previously dropped-out.

Thus, if there are no institutional obstructions to continuing education, an individual has the opportunity to pursue an education at any point in her/his life. Education becomes a life-long process and one never looses the opportunity for it. Young people are not "written off" as failures by the institutions; the door is always open to return.

The individual takes control of and responsibility for her/his education and is given

> ...considerable choice in deciding when, where, and how he will seek to learn. Such choice has always been a hall-mark of the elite in various societies. Ontario and Alberta are significant in seriously proposing to make the traditional privledge a universal opportunity and in regarding it as a social necessity (Molyneux, 1974A:119).

Although the practical impact of this latest stage in educational policy seems to be limited, it marks a change in direction of modes and channels of schooling and in the approach taken to facilitate equality of educational opportunity. Despite the definite shift towards conservatism evident in this development, the modern liberal view is still able to struggle through. For despite existing inequalities of condition between groups, the basic rules for allocating rewards in society are based on merit and not inheritance. Thus, such rules, and the inequalities of rewards, are legitimized and seen as equitable. The belief is still there that every effort at providing equality of educational opportunity is being made.

The notion that education is the great equalizer, the modern liberal rationale for using the school as an agent of socio-economic reform, was put on the back-burner -- along with the human capital notion that education is an economically regenerative force with a financial pay-off to the individual and to society.

Along with these changes came the move to centralize and formalize education. This was true in the United States as well as in Canada. Education always has been fairly centralized in Europe. State and provincial governments in North America became more stringent in the allocation of funds to all levels of education since the early 1970's.

There was also a marked shift in emphasis from university to community colleges and technical institutes for manpower training and educational up-grading for employment. University graduation was increasingly de-emphasized as a means of credentials for white collar employment. Student loans and other financial assistance for post-secondary education became more difficult to get while at the same time tuition fees and the cost of living sky-rocketed. The result was shrinking university enrollments in the 1970's and 1980's.

CHAPTER V

Footnotes

[1] This includes class, sex, region, ethnicity, race, religion and anyother ascribed, external characteristic.

[2] The federal government in Canada, however, does have the sole responsibility for the education of armed forces personnel and their dependents as well as native peoples.

[3] We find a great deal of variation in enrollment statistics. Some sources specify full-time and some do not (leaving one to assume that the figures include part-time students); some include both. Some sources specify that their enrollment figures are for public community colleges; others include both public and private community colleges; others specify all two year college programs; others exclude technical institutes; others exclude junior colleges (which have no vocational/technical component); and worst of all, some do not specify what they mean at all! Gayfer reports a full-time student enrollment in community colleges in Canada for 1960/61 of 9,000 students and states that these colleges were mostly existing institutes of technology, whereas total post-secondary non-university full-time enrollment for that year (including hospital schools of nursing and teachers' colleges) was 49,300. It is rather confusing. Furthermore, the OECD 1975 External Examiners' Report on Educational Policy in Canada reported that 53,000 full-time and part-time students attended all post-secondary non-university institutions in Canada during 1961/62. Hospital schools of nursing and teachers' colleges as well as specialized technical institutes and junior (academic, two year) colleges would all be included in the term post-secondary non-university as distinct from community colleges. Terminology and data reporting are often vague and confusing.

[4] Community college is meant to designate comprehensive two to three year colleges which have both academic and technical/vocational programs; however, it is often used very loosely in the literature, sometimes including purely technical institutes, junior (academic only) colleges, hospital schools of nursing, and teachers' colleges. Strictly speaking, these specialized institutions by themselves do not constitute a community college.

CHAPTER VI

CRITIQUE OF HUMAN CAPITAL THEORY AND THE TECHNICAL-FUNCTION THEORY OF EDUCATION

A. Principle of Marginal Productivity

Of all the possible criticisms levelled at human capital theory, there is one which both strikes at the heart of its economic analysis and invites sociological alternatives. The principle of marginal productivity which underlies human capital theory, indeed provides the foundation for neo-classical economics, is perhaps the key to its undoing.

Marginal productivity means that individuals are paid their marginal product. It is not necessary that each individual worker receive wages equal to his/her marginal product. However, workers as a group in a particular category of labor (such as plumbers) must be paid their marginal product even though all workers in that category will not necessarily be equally productive.

Thus, "(i)f labor is paid its marginal product, earnings reflect productive capacities. If labor is not paid its marginal product, earnings do not reflect productive capacities...[and] the concept of human capital loses its economic meaning" (Thurow, 1970B:17-18).

Denison (1962B:69) states that

> (r)eliance, for broad groups, on the marginal productivity explanation of the distribution of income permits us to treat differentials in average earnings among these groups as a measure of differentials in the average contribution to production made by the individuals comprising them.

Economists assume that higher wages reflect greater productivity, even when other factors are held constant. For example, Denison (1962A:125) writes that "...earnings differences between groups of males of similar age classified by education, are taken to represent differences in their contributions to production or quality."

Lester Thurow (1970B) wrote a book on human capital, even though he has no reason to believe that labor is paid its marginal product. Thurow (Ibid.:20-21) explains that

> (t)here is practically no direct information on whether or not labor is paid its marginal product. Economists take it as an article of faith or else claim that it is the best null hypothesis, and economic theory is based on the assumption that labor is indeed paid its marginal product. Without this assumption, much of economic analysis falls apart. The theory of production certainly does. The convenience of the hypothesis for economists, however, does not make it correct.

Whether or not the structure of wages in the United States, or anyother country, is determined by differences in productivity or by other factors, including non-economic ones -- a question usually ignored by economists -- has been an issue for sociologists and psychologists. Social stratification theories focus on the distribution of personal income and status. Innate intelligence and motivation as well as early socialization are importnat factors in the psychological theories.

Economists, as already mentioned, seem content to accept the principle of marginal productivity on faith, acknowledging that, although other factors may well be influencing the structure of wages, there still is a tendency for wages to move towards equilibrium with marginal productivity. Denison (OECD, 1964Bb:81) explains how he views the problem:

> My approach, like all others, requires that there be some equilibrium distribution of resources toward which the actual distribution tends to move, even if slowly and imperfectly. If everything is simply random, not only my economics but all economics has nothing to offer...
>
> My analysis of the contribution of education requires that, however income differentials are established, there is some tendency to hire employees with different amounts of education up to the point where their marginal product equals their salary. If this does not absorb everyone in some educational categories, either their salary comes down or some of them will be persistently unemployed. In the United States unemployment is greatest among the least educated, suggesting that the least, not the most, educated are relatively overpaid in comparison with a salary structure that would employ everyone...
>
> I might just add that the market for new college graduates is in fact a highly competitice one, with recruiters on the campus, and prices for graduates in different fields quite responsive to the laws of supply and demand. The bidding away of experienced individuals is commonplace.

B. Assumption of a Competitive Labor Market

Neo-classical economists tend to fall back on another neo-classical assumption -- that the labor market is competitive -- to reinforce the principle of marginal productivity. If wages do not reflect productivity, it is usually explained by economists in terms of labor market imperfections. These are usually seen as relatively small, exceptional cases which do not negate the rule.

For example, the earnings of physicians are not true reflections of their productivity because entrance into the occupation as well as their fees for service are monopolistically controlled by the practitioners themselves.

The opposite phenomenon also occurs, whereby monopsonies (firms that are single buyers of a particular factor) pay highly skilled employees less than their marginal product because of lack of effective competition in the market place and lack of bargaining power of the employees.

Most economists assume that "(o)n balance, the two might cancel each other. In any event, more information is needed before any serious adjustments could be made" (Cohn, 1972B:155).

Thurow (1970B:20) states that, in addition, "(c)ustom, habit, and ideas of fairness may also determine wages. Consequently, industrial wage structures may have little relation to productivity."

If we reject the assumption that wages reflect productivity, we have effectively killed human capital theory. No longer do earnings reflect their true contribution to national product and growth. Thus, social rates of return to investments in human capital can not be calculated. Individual earnings, and consequently national income, would not be dependent primarily upon human skills and knowledge. Productive capacity could no longer be measured by capitalized earnings. As Thurow (1970B:18) points out, "(i)f changes in capitalized earnings do not reflect changes in productivity, human capital cannot be used to explain the sources of economic growth." Furthermore, investment in human capital would have no real effect on the unequal distribution of personal income.

If we reject the principle of marginal productivity, we remove the normative basis legitimating inequality of rewards in society. Both human capital theory and the technical-function theory of education accept the meritocratic concept of society. Schultz and other human capital economists, however, insist that federal government intervention is necessary to redress certain socio-economic and psychological barriers which prevent individuals from certain groups and classes from investing in and developing their human capital so that there is effective equality of opportunity for all. Thus, Berner (1974A:248) remarks that "...functionalist theories rejected by sociologists, have reappeared through the back door of the economics of education."

Imperfections of the labor market include an array of factors, such as the influence of unions and collective bargaining on wages, unwillingness of the unemployed or underemployed to migrate to other regions with better employment opportunities, lack of information about employment, skill labelling by employers (Leibenstein, 1965A, 1969A), lack of or inadequate counselling services, lengthy period of education, and high proportion of well-educated manpower employed in the public sector (civil service, military) -- usually not competitive with the private sector, and, in any case, not profit-maximizing.

C. Quality of Education and the Affect of Sex, Race, Age, Class and Region on Rate of Return to Investments in Education

Schultz (1971B:196-201) has remarked that human capital theory appears to be "sex-specific" and so perhaps should be renamed male capital theory. We might add ethnicity, class, region, and age to this -- since white, middle-class, urban, "mature" (middle-age) males have a much higher return on their human capital than do non-whites, females, the young, the aged, the rural, and the poor.

Becker (1964B) says that "traditional hiring practices" may be partly irrational and discriminatory. A lower rate of return to investment in education by the "disadvantaged" groups, however, is justified by Becker because of the supposed lower costs and quality of that education.

Becker (1975B:172-178) states that the direct and indirect costs of college are lower for non-whites than for whites because they attend cheaper, "lower quality" colleges and earn lower wages than whites. Therefore, it is "natural" that the rate of return to their investment in college education will be lower than that of whites.

Women have lower direct and indirect costs as well, in comparison to men, according to Becker. Hence, women receive a lower rate of return to their investment in college education. This is further mystified by Becker's (1975B:179) remark that "...women go to college partly to increase the probability of marrying a more desirable man." Somehow we are supposed to come to the "logical conclusion" that women marry men but men retain their high rate of return to college education whereas women do not. In Becker's (Ibid.) own words,

> ...the gain to women from additional schooling should be determined by family earnings classified by the wife's education rather than by personal earnings so classified, and the full money gain to women may be much higher than previous estimates have indicated.

Lower rates of return to college education of rural persons is also attributed to lower direct and indirect costs and lower quality education. Rural students earn more while in college than urban students, so their foregone earnings are lower. However, fewer rural persons attend university apparently because the lower rate of return is a more forceful negative factor than is the positive lower cost (Becker, 1975B:180-181).

Schultz emphasizes the inferior quality of the education received by most non-whites and rural persons, as well as many females. Therefore, improvement in quality of education should raise the rates of return. However, the importance of quality of education in human capital theory stems from the causality which human capital economists attribute to the relationship between education and productivity and between productivity and earnings. Schultz sees a definite causal relationship between poor quality education, low worker productivity, low income, and lack of opportunity. The poor, the rural, and non-whites are generally lacking the human capital (technical skills and knowledge) necessary to raise their productivity and income, according to Schultz. Such people must be willing to migrate to regions where employment opportunities are greater, and to where educational opportunities are better.

Schultz considers poverty as detrimental both to the individual and to society. He quotes the same line from Faulkner's Intruder in the Dust in many of his books and articles when discussing poverty. That line is, in Schultz's (1971B:47) paraphrase: "The man without skills and knowledge leaning terrifically against nothing." Schultz (Ibid.) consistently stresses that "...the most distinctive feature of our economic system is the growth in human capital. Without it there would only be hard, manual work and poverty, except for those who have income from property."

D. Eradication of Poverty through Investment in Education

Improving the quality of education at the pre-school, elementary, and secondary levels and providing compensatory educational programs at those levels for children from "disadvantaged" groups has been one of Schultz's policy recommendations to the United States and other governments as a key element in the improvement of human capital and the eradication of poverty. Such improvement in quality of education would be a major step towards the provision of equality of educational opportunity which most liberals, including human capital economists, consider to be the most significant way to establish equality of opportunity in society. Thus, Schultz has consistently decried the emphasis put on *quantity* of education and drawn attention to *quality*.

> ...the condition of the stock of educational capital is adversely affected by an overemphasis on quantity of schooling relative to the emphasis given to quality... there has been a marked reduction in the differences in days of school attendance on the part of pupils in different parts of the United States. *But the differences in the quality of schooling are great, and they are the heart of one of our most serious problems, especially so in elementary schooling*. It is in terms of quality that many rural children and many children from the homes of nonwhite families are at a marked disadvantage (Schultz, 1972A:37).

In a study done to quantify the contribution of education to the War on Poverty in the United States, Thomas I. Ribich (1968B:60) states that "...more intensive education at an earlier age results in more and better learning, dollar for dollar, than does prolongation of education." Even though Ribich (*Ibid.*:101) concluded that "...the results of his study raise serious questions about the payoffs from investment in education as an antipoverty weapon", he does support Schultz's contention that there is a serious need for a significant improvement in quality of schooling. Improvement in quality of education is thus an efficient use of educational expenditures.

E. Inequalities in Quality of Education and Inequalities in the Distribution of Personal Income

Schultz relates inequalities in the quality of schooling to inequalities in the distribution of personal income. If inequalities in the quality of schooling can be overcome, it will subsequently affect the distribution of personal income and contribute directly to equality of opportunity. In Schultz's (1972A:36) own words:

> No small part of the inequality in the distribution of schooling arises from the inequality in the distribution of personal income. Children of poor people acquire not only somewhat less schooling but, what is much more important, the schooling they obtain is, as a rule, much lower in quality than that acquired by children of families (in communities) with high incomes. There have been some useful reforms in local and state finance. Bringing the capital market into play to provide the necessary additional resources where people are poor is not solving this problem. Tax-exempt school bonds are not the solution. The fact of the matter is that schooling is neither free nor equal. The two common expressions "free public schooling" and "equality of educational opportunity", are in this context empty phrases. Schooling is inescapably an expensive enterprise, privately and publically. The term "opportunities" is most ambiguous. Nevertheless, as already noted, the policy implications of the inequality in schooling that is associated with the inequality in the distribution of personal income are strong and clear. Relatively more of the investment resources entering into education should be allocated purely on economic efficiency grounds in favor of the children from poor homes.

As part of the War on Poverty in the United States, billions of dollars have been spent on compensatory educational programs for children from "disadvantaged" (low income) groups at the pre-school, elementary, and secondary school levels -- more than $10 billion from 1965 to 1974 (Gordon, 1974Aa:309). The Elementary and Secondary Education Act, passed in 1965, provided nearly $1 billion for such programs that year. The amount spent reached a high of $1.5 billion prior to 1972, when it was $1.4 billion (at which time it involved 14,200 school districts enrolling 7.3 million of the 8.1 million qualifying children)(Plotnick and Skidmore, 1975B:22).

Operation Head Start was designed to narrow the gap in cognitive achievement between four and five year olds from "disadvantaged" (low income) groups and "average" middle-class children. School lunches and physical examinations were also provided in an attempt to improve the nutrition and health of the children in the program.

There has been a change of emphasis from higher education to pre-school and elementary education in most poor countries since the early 1970's. This is in reocgnition of the fact that human capital development requires a certain minimum quality and quantity input in the pre-school years in order for later development to occur. In the poor countries the problem of malnutrition alone is monumental. Thus, development of human capital in those countries requires earlier and more comprehensive intervention than in the rich countries. International aid agencies, including the World Bank, have been involved in this policy change.

In Western Europe, emphasis has tended to be at the secondary level, in providing common education -- or at least common facilities -- for children eleven years and older, through the years of compulsory attendance. The establishment of comprehensive secondary schools (the secondary modern school) is the product of these efforts.

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Streaming, more flexible curricula, and various special programs were established to improve the educational achievement of working class children. The ultimate goal of this was to enable and to encourage "talented" children from the working class to achieve in school and to continue on in post-secondary education.

Despite the tremendous increase in expenditures on these educational programs around the world, there seems to be consensus that the goals have not been met.[1] As to why this has been the case, there is no consensus. The apparent failure of educational programs premised on human capital economics and political liberalism has contributed to the resurgence of neo-conservatism and the growing belief by members of the advantaged groups that poverty and unemployment are due to innate attributes of the individuals and consequently immune to any social, economic, or political intervention.

American programs designed to improve the educational achievement of children from disadvantaged groups have been aimed at either changing attributes of the individual students (such as language, conceptualization, attitudes, study habits, eating habits, etc.,) and/or providing more resources and better facilities (or their equivalent) to the schools which they attend.[2] These programs are, within broad parameters, attempting to improve the quality of education which children from disadvantaged groups receive.

F. Assumption of a Continually Growing Economy, Low Unemployment, and an Infinitely Elastic Demand for Highly-Educated Workers

Human capital theory also assumes a continually growing, expanding economy with nearly full employment. The capitalist economies of Western Europe and North America were booming during most of the 1950's and 1960's.

Since World War II, the economics of all the Western industrialized capitalist countries have been expanding rapidly, with increased automation, large increases in the growth of the public sector, increases in the labor force (baby boom), and relatively low unemployment. Investment in labor power has also grown considerably.[3]

This has not been the case in the 1970's and 1980's. Since the late 1960's, there has been world-wide inflation and depression, with high and rising unemployment. Gonick (1978B) refers to this as stagflation -- a concept completely unimaginable let alone explainable in contemporary liberalism. The result has been a general backlash against liberalism and a noticeable resurgence of neo-conservatism. "While liberal economics has reached its limits, its collapse has sparked the rebirth of a new conservatism" (Ibid.:148).

This shift has occurred on both the governmental level in terms of public policies as well as on the grass roots level in terms of public opinion.

The capitalist economy world-wide experienced the worst recession since the Dirty Thirties by 1974/75 (Gonick, 1978B:108). The downswing began in 1968, when inflation was 4.0% and the unemployment rate was 4.8% in Canada (Ibid.:114). The peak of economic prosperity was 1966, when the unemployment rate in Canada was 3.6% and the inflation rate was rising by 2% annually (early 1960's) to 4% annually (Ibid.:115).

The 1969 recession was aborted by government spending. The economy was kept afloat with an increase in the money supply and runaway inflation appeared by 1971.[4] Stagflation was firmy established throughout the Western capitalist world. Thus, "(l)ike the Great Depression, this crisis is universal" (Gonick, 1978B:146).

By mid-1975, Canada, like other Western capitalist states, cut b ack expenditures on social services — unemployment insurance, medical care, education, etc. Restraint and austerity were the new catch words. Retrenchment "...and to a degree, repression" were the new reality of social policy (Gonick, 1978B:126). The fiscal crisis of the state reached fruition.

In Canada, Gonick (1978B:120) reports that in the June 23, 1975 budget, "...planned public expenditure growth was cut by a billion dollars, and there were cutbacks on programs for medical care and unemployment insurance." The resulting reduction in public sector employment added to the rising unemployment in the private sector. Unemployment in Canada rose from 5.6% in 1973 to 8.5% in 1978 (Ibid.:129). Consumer prices in Canada were rising at 12.5% annually by December 1974 (Ibid.:120). The inflation rate in early 1978 was 8.5% in Canada (Ibid.:114).

G. Sanctity of the Welfare State and Government Regulation of the Economy

The post-World War II era, from 1945 to the 1970's, can be characterized as one of pervasive government intervention and regulation of the economy and the establishment of the welfare state. This acceptance of Keynesian economics and liberalism signifies public commitment by governments to "...resolve economic and social problems through government action..." (Gonick, 1978B:87).

These goals can only be pursued in times of rapid economic growth and prosperity, when unemployment and inflation are relatively low and the tax base is increasing. However, programs to combat social and economic problems cannot expand faster than the tax base without "...impinging on the high incomes of the affluent classes" (Gonick, 1978B:87).

The belief that "big government" is responsible for stagflation has become widespread and there has been sustained pressure from business and the public to return to "free enterprise". De-regulation of the economy, drastic reduction in government expenditures (especially on public sector jobs and social programs and services), rejection of welfare liberalism, and a return to emphasis on responsibility of the individual characterize the emergence of neo-conservatism witnessed throughout the Western capitalist world since the mid-1970's. It is a response to the near collapse of the capitalist economy and complete disillusionment with welfare liberalism (Gonick, 1978B:88-89).

H. Underemployment or Unemployment of the Highly-Educated

Without getting into a discussion of whether or not neo-conservative policies will prevail in the 1980's, it is a reasonable assumption that unemployment and underemployment will continue to remain high, as will inflation. The growth rates of Western capitalist countries has slowed dramatically in the 1970's and there is no reason to believe they will increase in the foreseeable future.

Employers will make a sustained effort to keep wages down and increase their profits, as they have since 1975.[5]

The economic climate is not buoyant enough to absorb the growing numbers of highly educated workers. Lockhart (1971A:253) reports that Canadian universities increased the number of Ph.D.'s graduating in 1959 from 200 by a factor of six by 1969 but the over-all demand for them barely doubled, and in fact had declined to no increase by the end of the decade.

Likewise, the increased demand for scientific manpower in industrial research establishments in Canada between 1968 and 1970 was actually less than one-sixth of that anticipated. Although the Science Council of Canada expected a decrease in demand for scientists and engineers after 1970, there would be a 12% annual increase in the Ph.D. pool to at least 1975 even if no new doctoral candidates were admitted. The University of Toronto cut graduate admissions by 25% in 1970. Lockhart (1971A:253) remarks that

> ...even this belated response to the supply/demand logic assures that on the basis of the most optimistic demand projections, there will be two to three new Ph.D.s for every available job over the next decade at least.

The rush to close the gap in education with the United States was so intense in Canada during the 1960's that by 1970, the proportion of graduate engineers and scientists in the labor force was 1.9% in Canada, compared to 1.5% in the United States (Lockhart, 1975A:198).

Lockhart (1979A:229) refers to the 1970's as the decade of "...economic recession and unmet occupational expectations." As with the economy, the crisis of unemployed highly educated manpower was world-wide.

Barbara Frum (1971A:20) remarked that

> (s)uddenly there is so little demand for university graduates that a frightening and frightened segment of the Class of '71 can't find even the mundane opportunities that in years past they might have sneered at. No one knows how many of 75,000 graduates in the class of '71 have been unable to find the kind of work they have been

> trained for, but it could be as many as half...The Class of '71 is the victim of what is coming to be known as The Great Training Robbery.

Contrary to human capital theory, the unemployment rates went up with educational qualifications. A study of 1974 graduates from Ontario's post-secondary institutions indicates that four months after labor force entry, the unemployment rate of university graduates was 11.9%, and 9% for community college graduates, whereas the over-all unemployment rate was 3.7% in Ontario (Lockhart, 1979A:231).

Lockhart (1975A:199) points out that whereas the supply of university graduates increased 10% to 15% annually in Canada[6] during the late 1960's and early 1970's, there was also a decline in demand. "The resulting gap between supply and demand may thus be as high as one-third the annual production, perhaps more if underemployment is considered" (Ibid.).

Freeman (1975A:287) reports that in the United States,

> (t)he college job market underwent an unprecedented downturn in the 1970's when the earnings of graduates relative to other workers, the rate of return to investing in higher education, and employment opportunities dropped sharply, especially for new graduates.[7]

Freeman (1975A:291) also reports that

> (a)ccording to a [U.S.] Bureau of Labor Statistics survey, a majority of persons in the classes of 1970-71 had earnings below their expectations, with 33 percent of male bachelor graduates earning "substantially lower" than expected, compared to 31 percent receiving "about the same" income as expected and just 12 percent "higher income".

There was a "...marked slowdown in the rate of growth of professional and managerial jobs in the 1969-1974 period..." which suggests "...the possibility of a major market adjustment problem in the near future due to the greater increase in the supply of college graduates than in the number of high-level jobs" (Freeman, 1975A:291).[8]

Time reported on May 24, 1971 that "(a) survey of 140 U.S. colleges and universities indicated that between March 1970 and March 1971, job bids for male B.A.'s dropped 61%, and a staggering 78% for Ph.D.'s" (Daniere, 1973A:147).

Daniere (1973A:147) states that over-investment in education also resulted in a misallocation of the available labor force. Underemployment of university graduates became generalized in the early 1970's. Underemployment of these graduates leads to inefficient allocation in the labor market and to the phenomenon of job-up-grading.

> Job-upgrading is the process by which the annual excess of educated (or trained) members of the labor force over requirements in terms of previous-year qualifications is wiped out...the excess supply at any level of educational achievement is hired in preference to individuals of slightly lesser qualifications in jobs for which the latter had previously qualified (Ibid.).

When a majority of employees have the new level of education, it becomes a requirement for the job. The job becomes "up-graded" even though the content of the job has not changed. Job-up-grading seems to be the neo-classical solution to increasing credentialism and rising levels of education.

The sharp drop in demand for engineers in the United States resulted in 25% fewer Ph.D.'s earned during the 1970's than during the 1960's (Edmonton Journal, Sept. 18, 1980). The drop in supply is so severe that American universities may have to lower their standards and hire faculty without doctorates (Ibid.).

Demand for most college and graduate degrees, however, is continuing to worsen. The Washington Post cites the prediction that "...by 1985, 2.5 American college graduates will be competing for every 'college' job" (Edmonton Journal, June 5, 1980).

In stark contrast to the 1960's, teaching jobs in post-secondary institutions across North America are in high demand and low supply during the 1970's. The growth rate of full-time faculty in the United States from 1972 to 1977 was 9% (New York Times, quoted in Edmonton Journal, March 20, 1980).

There has been a marked increase in the proportion of part-time faculty members in post-secondary institutions, amounting to 50% rate of growth between 1972 and 1977 in the United States (New York Times, quoted in Edmonton Journal, March 20, 1980). Community colleges employ 51% of their faculty members part-time, compared to 24% for four year colleges (Ibid.). According to the U.S. National Center for Educational Statistics, 32% of the total higher education teaching force of 675,000 are part-time faculty members (Ibid.).

Cantor and Roberts (1979B:1) cite economic recession and sharply declining birth rates[9] as two main factors causing the great drop in demand for teachers during the 1970's in England and Wales. As a result, the number of teacher-training places in colleges of education were cut back four times between 1974 and 1977, from 75,000 to 85,000 proposed places in 1977 to 45,000 (Ibid.:89).

Furthermore, the colleges of education themselves, which numbered 155 in 1972, have been reduced -- more than 60 merged with polytechnics and other institutions, at least 14 have closed, and the rest have been diversified. The change has been so drastic that "...in 1981 not one of the former colleges of education will be offering the same courses it provided in 1972" (Cantor and Roberts, 1979B:89).

The post-industrial society view that demand for highly educated manpower is infinitely elastic is simply not true for the 1970's. There is no reason to believe the situation will improve in the 1980's. Thus, another basic assumption of both human capital theory and the technical-function theory of education is invalid.

I. Manpower Training Programs

Another important assumption of human capital theory is that inequality in the distribution of personal income can be drastically reduced and poverty eliminated through education, training, and relocation of workers. Income is viewed as a function of productivity which is a function of education and training in both human capital theory and the technical-function theory of education.

Consequently, Canada and the United States established federal manpower training programs in co-operation with the provinces and states during the 1960's to up-grade and/or retrain workers. The problem of poverty was considered serious enough in both countries for the federal governments to intervene directly.

It was generally believed that the social benefits far exceed the social costs of education and training and so huge public expenditures were justified. The creation of a federal Department of Manpower and Immigration in Canada reflected the felt needs for manpower planning and the development of manpower policies at the federal and provincial levels in departments of education as well as labor. Labor market information gathering and dissemination also became an important function of this federal department.

The Economic Council of Canada (1971B:98) states the primary objective of manpower planning to be growth and the secondary objective to be equity and stabilization.[10]

Canadian manpower policy since 1966 has been concerned primarily with adults, has been much more comprehensive, and the federal government has played a more dominant role in planning than previously. The Minister of Manpower and Immigration, Allan J. MacEachen, before the House of Commons Standing Committee on Labour, Manpower, and Immigration in 1970, defined

> (t)he main objective of the Department of Manpower and Immigration is to further the economic growth of Canada by endeavouring to ensure that the supply of manpower matches the demand qualitatively, quantitatively, and geographically (Economic Council of Canada, 1971B:96).

Similarly, in a paper presented by the Department of Manpower and Immigration for OECD in July 1968, the following statement of policy appeared:

> The general aim of Canadian manpower policy is to encourage the effective allocation of manpower resources and the development of the labour force supply and characteristics compatible with the maximum sustainable rate of growth in real per capita income (Economic Council of Canada, 1971B:96).

Canadian federal government involvement in manpower training began with the Technical and Vocational Training Assistance Act of 1960, under which the federal and provincial governments shared the costs of programs developed to cover the training of the following three groups: 1) technical and vocational high school students; 2) youths and adults requiring post-secondary education to become technicians; and 3) adults (employed and unemployed) requiring training for employment or improved employment opportunities (Economic Council of Canada, 1971B:100). Expenditures by the federal government on these programs between 1960 and 1967 totalled $900 million.

Programs since 1967 are not shared-cost. The Adult Occupational Training Act of 1967 provides for federal long-term loans and capital grants for adults. Living allowances are also included.

The Department of Manpower and Immigration buys training services from private schools, technical institutes, and private industry after consulting with the provinces. Individuals enrolled in apprenticeships and any adults who have been out of school for one year and are considered capable of benefitting from the training (in terms of improved earnings prospects) are eligible for the adult training programs.

Part of the reason for the use of institutional training is because so many technical and vocational institutions were built between 1960 and 1966 under the previous federal policy.[11] Another reason is that industry is concentrated in a few places in Canada so that workers outside those areas cannot receive training-in-industry in their own area. An additional reason for the low participation rate with industry in manpower training in Canada is the great slowdown in the economy. Unemployment post-1967 is considerably higher than previously and employers have no incentive to participate in such training programs (Economic Council of Canada, 1971B:107-108).

The trend in Canada is towards adult training programs being another form of social assistance and economic as well as social stabilization in times of severe economic contraction.[12] Certainly the previously stated goals of manpower forecasting and planning for long-run education and economic development have been abandoned. Such planning is now viewed as hazardous, uncertain, theoretically weak, and politically unfeasible. That view has become more common in the international development and aid agencies as well, though short-run planning is still utilized by such agencies as well as governments in response to technological change, social pressures, and changing tastes (McLeod, 1973B:211).

The strong emphasis in Canadian manpower policies on growth, especially since 1969, is in sharp contrast to American manpower policies which promote programs oriented primarily to help "disadvantaged" groups (Economic Council of Canada, 1971B:98).

American manpower policy stresses equity. The underlying assumption is that "average" workers probably function adequately in the private market but the "disadvantaged" workers will not without federal government intervention on their behalf.

In a message to Congress on August 12, 1969, President Richard M. Nixon stated that

> (m)anpower training means: (1) making it possible for those who are unemployed or on the fringes of the labor force to become permanent, full-time workers; (2) giving those who are now employed at low income the training and the opportunity they need to become more productive and successful; (3) discovering the potential in those people who are now considered unemployable, removing many of the barriers now blocking their way (Economic Council of Canada, 1971B:98).

Even though experts agree that training in industry is preferable to institutional training, there is an almost exclusive reliance on the latter in Canada. The Economic Council of Canada (1971B:104) reports that "(l)ess than 5% of total Canadian federal adult occupational training expenditures (excluding apprenticeships) is directed to training-in-industry."

Canadian Manpower Training Program funds allocated to in-industry training increased from 1% of CMPT funds in 1967-68 to nearly 10% in 1974-75. However, this still falls far below the proportions spent on in-industry training in the United States and most European countries (Goldman, 1976B:38).

In 1972, the Adult Occupational Training Act of 1967 was amended to allow for federal funding of on-the-job training under two new programs. One was to provide for on-the-job training as well as for the creation of new jobs for disadvantaged workers. The other was to train unemployed and underemployed workers for jobs which are vacant due to a shortage of qualified workers. These programs operated in the private and public sectors. They have, however, received substantially less funding than have other programs (Goldman, 1976B:92).

The U.S. federal manpower policy was developed and pushed in 1961-1962 as a direct result of human capital theory.[13] During the Johnson administration, there was a shift away from institutional to on-the-job training.[14] A number of different programs were developed as part of Johnson's War on Poverty.

During Nixon's administration, the NAB-JOBS (the National Alliance of Businessmen's training in the business sector) program of subsidizing private employers was established. Later, with the Manpower Revenue Sharing Act, Nixon decentralized manpower planning and implementation of programs to the state and local levels, though they were federally funded.

J. The War on Poverty in the United States

From the very beginning, the American War on Poverty focused on developing programs to provide equality of opportunity for all groups in society and depended upon economic growth and prosperity rather than direct or indirect redistribution of money or goods to achieve that goal (Plotnick and Skidmore, 1975B:5). In a speech at Yale University on June 11, 1962, President John F. Kennedy stated that "(t)he national interest lies in high employment and steady expansion of output, in stable prices and a strong dollar" (Lampman, 1971B:13).

Since early 1963, when President Kennedy first proposed the development of a comprehensive federal policy to eradicate poverty in the United States, job training programs and community development and participation by the poor in these programs have been stressed. Income maintenance programs have been of peripheral nature. Willard Wirtz and Daniel Moynihan stressed that the main cause of poverty is lack of jobs. The community approach to social problems, which gained credence in the 1950's, includes the idea that any pathology lay in the community not in the individual. Both ideas remained central to the War on Poverty.

Plotnick and Skidmore (1975B:5) report that Kennedy's economic advisors urged

> ...that expansionary fiscal and monetary policy could produce vigorous and sustainable economic growth (at tolerable price levels). The tight labor markets thus produced would, it was argued, create jobs and continual government revenues (fiscal dividends) to be spent on social programs. This, in turn, led to the view that the poor did not need handouts as much as enrichment programs to render them more employable.

The largest portion of the Economic Opportunity Bill, which was signed into law in August 1964, went to human capital programs. Youth opportunity programs and work experience programs constituted 58% of the total with another 33% going to urban and rural community action programs. Although $800 million was approved for this first effort in the War on Poverty, it was only a very modest percentage of the federal budget and not enough to do justice to the goals of the program. Far more money was spent on social welfare programs (Plotnick and Skidmore, 1975B:6). In fact, Plotnick and Skidmore (Ibid.:74) report that "...special anti-poverty expenditures have never accounted for more than 6 percent of the total assistance to the poor and their relative importance has declined since 1968."

Federal programs were designed to create new jobs, prepare workers for existing and new jobs, and to provide equal employment opporunnity. Thomas I. Ribich (1968B:51, footnote 28) remarked that "...it might be argued that retraining and tight labor markets are, to some extent, substitute policies."

The efficiency and the long-term viability of federal job creation programs are highly questionable. Plotnick and Skidmore (1975B:187) report that

> ...the real new employment created by public employment programs, as a percentage of the new jobs created on paper, is estimated at 51 percent after one year, 44 percent after two years, and 4 percent "under a permanent program".

The entire manpower training concept as a means of eradicating poverty has come under heavy criticism. Plotnick and Skidmore (1975B:187) point out that

> (i)t has also been hard to demonstrate that manpower programs judged cost effective in themselves have placed previously unemployed workers into jobs that would have been otherwise unfilled. Their effect has probably been, at least partly, to put newly trained workers into jobs previously filled by other workers, who were simply discarded.

The notion of education as capital, like most constituent part of the premises and assumptions of human capital theory, depends upon a continually expanding economy with sustained growth and elastic demand for educated labor. The American War on Poverty, like the Canadian effort, also depended upon these factors.

As soon as the economy began to slow down and unemployment as well as inflation rise, public programs premised on human capital theory fell under heavy criticism. Keynesian economists consider equality and efficiency as antithetical in periods of sustained inflation (Lampman, 1971B:28). However, the view of human capital economists that removing poverty makes society more efficient[15] prevailed into the early 1970's.

A rather interesting occurrence was the decision by President Richard M. Nixon to fight inflation by sharply increasing unemployment to above 4% in order to keep wages down, which in turn would lessen total spending and hence bring prices down (Lampman, 1971B:156). Unfortunately, unemployment rose to nearly 6% in 1970 while inflation also grew worse.[16]

K. Gross Inequality in the Distribution of Personal Income

Modern liberalism has generally prevailed over conservatism in most Western capitalist countries since World War II. One major goal of these liberal governments has been the elimination of poverty and a lessening of the gross inequality in the distribution of personal income. The liberal belief that inequality is largely a result of man-made, institutional obstacles and socially-determined attitudes reinforces the liberal strategy of pursuing social change and reform through the state rather than the individual. Thus, the state has taken on the responsibility and power to resolve the issue of inequality within the existing institutional framework by use of non-violent, legal, constitutional, and administrative "solutions" (Morton and Watson, 1971A:290).

Human capital theory fits into the mainstream of modern liberalism. Schultz has consistently pointed out the absolute necessity for government intervention and involvement in eradicating poverty in the United States as well as reducing the inequality in the distribution of personal income through increased investment in human capital. "Diminished" inequality is the liberal ideal.

The human capital economic argument is that everyone would benefit from the resulting development of talent and contribution to productivity. Poverty is inefficient and wasteful.

Western capitalist society has moved along a liberal continuum from legal equality to religious equality to political equality (Lampman, 1971B:17). Now, the offensive is directed towards reducing economic inequality. Reducing the inequality in the distribution of personal income has been the goal since World War II.

Human capital economists, like other liberals, do not want to eliminate all inequality, but only those inequalities which are "arbitrary", "functionless", and/or "capricious" (Lampman, 1971B:42).

Inequalities which are destructive and oppressive must be eliminated but some inequality is unavoidable, necessary, and functional, according to this view.

Human capital economists, like educators and sociologists who subscribe to the technical-function theory of education, believe that complex, modern societies require social stratification and differentiation and that some inequality is functional (Lampman, 1971B:32). Thus, meritocracy as the ideal stratification system and a strong welfare state with centralized power constitute the basic thrust of modern liberalism.

The United States pursued the goal of eliminating poverty by attempting to increase the standard of living of those individuals in the bottom income group. Low income was viewed as a sign of social and political failure in the early and mid-1960's. Thus, the primary goal was to significantly reduce and eventually eliminate the number of families living below the poverty line.

Unfortunately, the question of which group would bear the cost of income redistribution was never addressed (Lampman, 1971B:50). Income inequality in terms of the functional income and shares of income, that is in terms of the division of income between labor and property, was ignored. The size distribution of income, a ranking from rich to poor which expresses inequality in terms of the share of all income going to the top 10% and so on of all income receivers, was also ignored (Ibid.:43).

In the 1960's, 80% of the American labor force were employees (Lampman, 1971B:44).[17] As such, these individuals are dependent upon their employers for work. Therefore, most workers are adversely affected by high unemployment and inflation.

Attempts to bring people above the poverty line by educating and/or training them fail if those individuals are unable to obtain stable employment at above poverty level wages.

In aggregate terms, what has been the pattern of income inequality? Human capital economists maintain that there is and has been a sustained lessening of inequality in the distribution of personal income since World War II. The reasons for this, they argue, are varied and complex. One main reason is the increased level of education of workers.[18]

Lampman (1971B:46-47) uses U.S. Bureau of Census data to illustrate the size distribution of income between 1947 and 1967 in the United States. He asserts that

> ...numerous scholars have produced a consensus that there was indeed a lessening of inequality in the United States during 1938-1948 and no clear trend one way or another during 1948-1967. The lessening of inequality seems to have been confined to those groups within the top half of the income distribution, with no great change in the income share of, and no change in the inequality within, the bottom half...the post-war years have seen a slight gain in share of income by the families in the fortieth to ninety-four percentiles, at the expense of the bottom forty and the top six percentiles.[19]

Thus, Lampman (1971B:47) maintains that there has been "...stability in the overall distribution of wealth and income..." in the United States. This means that "...the top 10 percent of income receivers has received about 28 percent of total money income and the lowest 10 percent about 2 percent of income. The share of the lowest 20 percent of income receivers has been about 5 percent of total money income" whereas the top 20 percent of income receivers receive over 40 percent of total money income (Ibid.:46).[20]

Plotnick and Skidmore (1975B:104) state that the relative income gap between rich and poor increased $130 per person between 1965 and 1972. Although the absolute income gap between rich and poor fell between 1965 and 1968 in the United States, it has risen since then. They maintain that pretransfer absolute poverty in the United States did not really decrease between 1965 and 1972. It was static, as was relative poverty, for that period. However, since 1972, there has been an increase in income inequality as well as in the distribution of income. The percentage of people living below the poverty line has also increased (Ibid.:179-180).

Leo A. Johnson (1977B:4) uses data from Taxation Statistics to illustrate the increase in income inequality in Canada between 1946 and 1971.

> For example, in 1946, the richest ten per cent of earners received about 20 times as much income as the poorest ten per cent, whereas in 1971 they received 45 times as much. Similarly, in 1946, the income received by the riches decile equalled that received by the poorest 55 per cent of earners, whereas in 1971 their income equalled that of the poorest 64 per cent of earners.

Not only has there been a decline in relative income of the poorer income earners but there has also been a decrease in absolute purchasing power as well. Johnson (1977B:5-6) points out that this decline

> ...appears to be occurring at an accelerating rate, and to be reaching higher and higher in the ranks of income earners. Thus while the sixth decile still increased its portion of earnings in the 1951-56 period, it then levelled off between 1956 and 1961, then declined between 1961 and 1971...If this pattern of earnings change continues, then even earners in the fifth and sixth deciles are likely to experience declining standards of living in the foreseeable future.

Johnson (1977B:7-8) provides the following example of the magnitude of inequalities in purchasing power between different occupational groups in Canada between 1946 and 1971:

> In a period when average earners received a purchasing power increase of $1,609 (in 1961 dollars), doctors received an average increase of $13,954, dentists received $10,672, and lawyers received $10,026. Farmers, in contrast, received an increase in purchasing power of only $637, while pensioners lost $95.

Furthermore, a survey done in 1971 revealed that more than 25% of Canadians in the 80 to 90 percentile level ($8,000 to $10,000) believed that they were poor (Stewart, 1971A:45). Poverty line income, as defined by the Canadian Senate, for a family of four in 1971 was $5,315 (Johnson, 1977B:21).

There has been a definite increase of poverty in Canada since World War II. Johnson (1977B:20), using poverty line income figures provided by the Senate, states that

> ...in 1946 almost twenty per cent of earners earned below the poverty line levels for single individuals. In 1971 this proportion had increased to thirty per cent...In spite of the enormous increase in average earnings between 1946 and 1971, maldistribution of income created a situation where fully sixty per cent of all earners still could not adequately support a family of four.

Thus, between 1946 and 1971, "...the richest twenty per cent of Canadian earners have received almost half of all new income, while the poorest fifty per cent received only about twenty per cent" (Johnson, 1977B:7).

The degree of inequality in the distribution of personal income varies among European countries. Some, like the Netherlands and the

Scandinavian countries, are more egalitarian than the United States. Others, like Italy, have more inequality in the distribution of personal income than the United States (Lampman, 1971B:46).

The underdeveloped countries in general have more inequality in the distribution of personal income than the United States. In many instances, the inequality in income is the most extreme. However, because of many social and economic differences, it is very difficult to make comparisons between underdeveloped countries as well as between them and the modern, industrialized countries. The Soviet Union and most other communist countries do not publish size-distribution data (Lampman, 1971B:46).

It is commonly believed that government transfer payments to the poor and various social welfare programs provide the poor with at least poverty line income and services and also that this is done at the expense of the wealthy. Minimum wage legislation is also popularly believed to provide workers with at least poverty line income. Such government expenditures along with a "progressive" income tax system are thought to contribute to a reduction in the inequality in the distribution of personal income. These assumptions and beliefs are false (National Council of Welfare, 1976B, 1978B).

Johnson (1977B:21) compared the provincial welfare benefits with the poverty line measures developed by the Senate for the years 1969-1971 and concluded that

> ...for normal families, welfare in most provinces falls below even the minimum standards for food, clothing, and shelter set by the Senate Committee, and none comes close to providing poverty line incomes. The worst, New Brunswick, provides only 73 per cent of basic necessities and 44 per cent of poverty line requirements.

Minimum wages[21] are set marginally higher than welfare benefits in some provinces, but in many provinces they are lower. For a family of four, minimum wage employment provides income far below the poverty line.[22] Furthermore, full-time, stable employment at minimum wage is not the norm (Johnson, 1977B:21). Minimum wage employment is usually non-unionized, seasonal, and unstable.

Plotnick and Skidmore (1975B) document the fact that poor families in the United States with unemployed able-bodied adults fare worse than the disabled and elderly in terms of welfare benefits.

Contrary to popular belief, then, poor people, whether employed or unemployed, are not adequately provided for by welfare programs or minimum wage legislation. In fact, government transfer programs do not benefit the poor at the expense of the rich. They do not contribute towards a lessening of inequality in the distribution of personal income. Johnson (1977B:23) has shown that "...low wage earners actually receive less money from transfer payments than do those in high income brackets." Thus

> (n)ot only has the addition of transfer payments improved the relative position of the lowest-paid wage earners, but in the past twenty years a change for the worse has occurred. And, even when we examine the relative position of all income recipients, no improvement of distribution due to transfer payments has come about. Clearly, then, the professed aim of the welfare system -- to prevent poverty and to overcome disparity -- has almost completely failed. The huge outcry about the crushing burden of taxation on the rich to alleviate the condition of the poor has served only as a smoke screen for the preservation of the incomes and priviledges of the rich (Johnson, 1977B:23-24).

The structure of taxation in Canada was studied by Professor Thomas A. Wilson of the University of Toronto and reported by the _Toronto_ _Star_ on February 11, 1970. Johnson (1977B:25) summarized the results:

> ...when all taxes, direct and indirect, were taken into account, families whose total income from all sources was less than $2,000 per year paid more than 60 per cent of their gross income in taxes. For families at $10,000 per year, taxes represented only 38 per cent of income, while above $10,000 level little progression occurred.

Allan M. Maslove conducted a study of the system of taxation for the Economic Council of Canada in 1972. His conclusion was that rather than having a progressive income tax system, Canadian taxes are highly regressive.[23] Johnson (1977B:26) quotes from Maslove's (1972B:64) report that

> By far the most striking conclusion to be drawn from an examination of total tax payments is the extreme regressivity of the system at the lower end of the income scale and the lack of any significant progressivity over the remainder of the income range...Indeed, over the lower portion of the income scale, the system tends to contradict the ability-to-pay principle by taxing the poor at a higher rate than those who are better off.

In the United States, the over-all combination of taxes prior to World War II was regressive. It "...compounded the pretax inequality of incomes...By 1929, some measure of equalization had become fixed as an outstanding characteristic of our U.S. fiscal system..." (Lampman, 1971B:95). There was a large increase in income tax during World War II (to over 25%) and federal taxes increased over state and local taxes for the first time. However, the "progressive" income tax system (including corporate taxes) in the United States has not reduced the inequality in the distribution of personal income.[24]

Chiswick and Mincer (1972A) published results of a research project in which they utilized time-series data to determine changes in the distribution of personal income of adult males in the United States between 1939 projected to 1985. Their conclusion was that "...relative inequality declined between 1939 and the early postwar years but has subsequently remained almost unchanged" (Ibid.:34). The study is an attempt to apply time-series analysis to investigate the relationship between human capital and income distribution, which previously had been limited to cross-sectional analysis. What is interesting to us about this study is the conclusion that changes in employment conditions are much more important in explaining changes in inequality than is schooling. Chiswick and Mincer (Ibid.) conclude that

> (f)or adult males in the United States, changes in the income distribution are affected mainly by changes in distributions of schooling, age, and employment. During the past 20 years, changes in the level and inequality of age and the inequality of schooling have been small and could not have greatly influenced the overall distribution, especially since they tend to have canceling effects. The stronger influence has been the business cycle through its effects on the dispersion of weeks of employment...Most of the observed differences in inequality between 1939 and 1965 is explained by changes in employment conditions. The remainder is a decline in the inequality of wage rates, possibly due to a decline in the rate of return to schooling.

L. Using Rate-of-Return Analysis to Balance Economic Efficiency and Social Equity

Schultz has been critical of American tax laws for years because, in general, they do not take into account human capital. Investment in human capital on the money market is very difficult, especially if the borrower has no property to use as collateral.

The development of student loan programs by the federal and state governments in the United States as well as by the federal and provincial governments in Canada and other financial assistance for students since the mid-1960's was a result of the lack of opportunities in the private sector and the importance placed on such opportunities by Schultz and other human capital economists.[25]

By 1969, however, with the publication of a study by Hansen and Weisbrod, Schultz became convinced that the great public subsidies to higher education had a regressive effect on the distribution of personal income. Schultz (1971B:176-177) became convinced that the financing of higher education is quite regressive

> ...because it increases the lifetime earnings of college graduates in part at the expense of the others, and, closely related, because higher education provides educational services predominantly for students from middle and upper income families, a part of the cost of these educational services being paid for by taxes on poor families...(A) much smaller proportion of the undergraduate students in publically financed institutions receive financial aid for reasons of their having inadequate income than do undergraduate students in private colleges and universities. In either case, the financing is such that substantial amounts of valuable assets are being transferred by society to a particular intellectually elite set of individuals.

Thus, because of the high public subsidies to higher education, Schultz (Ibid.26) believes that it "...is in general both socially inefficient and inequitable."

Because of the tremendous expansion of post-secondary education in the 1960's in North America and the large amount of public subsidies,[26] the state, provincial, and federal governments in the United States and Canada began shifting more of the cost directly onto the students.

This was rationalized in human capital terms as a legitimate investment because the students would realize a rate of return on their education equal to most business investments. Therefore, it was felt that they should finance a large part of the investment. Consequently, by the mid-1960's, student loans were an established, accepted way of financing one's post-secondary education.

Another strategy of the state to combat its fiscal crisis was to raise tuition fees.[27] This also fell under the rationale of human capital theory, since the private rate of return was considered high enough to warrant the increased private investment in education. Schultz has been a proponent of increasing tuition fees to full cost for a number of years. The real cost of producing services should be the price, according to Schultz. Because there are real differences in quality between various post-secondary educational institutions, there should be corresponding differences in price. Once prices are established which reflect the full cost and differences in quality, tuition will be "...socially efficient prices to which the student can respond" (Schultz, 1972A:45). Only then will the post-secondary educational sector of the economy function efficiently on both the social and individual levels. In Schultz's (_Ibid._) own words,

> (n)owhere are students confronted by prices for these services that are equal to the real cost of producing them, and therefore the prices to which they respond are not socially efficient prices. As a consequence, no matter how efficient students are privately in their decisions, from the point of view of the economy as a whole, the allocation of resources to...education will not be socially efficient.

Educational policy changes in Ontario in 1972 included the raising of tuition fees, an increase in student loans, and a decrease in opportunities to earn teaching stipends. The Wright Commission supported these changes and stated that the availability of student grants and loans would ensure equality of educational opportunity to individuals from all groups in society.

Porter, et. al. (1973B), in a study of social class and educational opportunity in Ontario, are critical of the 1972-73 policy changes for post-secondary education in Ontario because they are basically regressive. For instance, the first $800 of an award must be taken as a loan.

Porter, et. al. (1973B:206) supported a substantial increase in tuition fees (to cost level) but only if accompanied by "...an all grant (no loan) scheme based on parental resources." Otherwise, accessibility to post-secondary education for lower class students would be seriously jeopardized. Student loans to those from middle and upper class families would still be available, however,

By 1977, the Ontario Economic Council advocated that students pay the full cost of their post-secondary education and that the government should not provide any subsidies to colleges and universities (Buttrick, 1977B). Tuition fees have been raised substantially across Canada and the United States, although not to the level of full cost.

The idea of shifting the allocation of public monies from post-secondary institutions directly to the students themselves developed in the early 1970's. Schultz (1972A:24-25) is one of the advocates of such a policy change because it would be allocatively more efficient and socially equitable. Students from low-income families would be highly subsidized, whereas those from middle and high-income families would not receive subsidies. Porter, et. al. (1973B:208) also support this proposed policy change. They state that such a policy change would be "...both politically and constitutionally attractive."

While financial aid[28] to post-secondary students from low-income families in the United States has increased, that has generally not been the case in Canada. Tuition fees have escalated in both countries, as have room and board charges. However, Canada does not have a national work-study program providing subsidized employment at universities for students from low-income families, and there is very little money available to undergraduates in the form of bursuries, grants, and scholarships based on need. Student loans are becoming increasingly more difficult to obtain. While based partially on need, the course of study and prospects for repayment are also considered as important factors on a student loan application.

Although the increases in tuition fees have been justified in terms of human capital theory, in that there is a high private rate of return to such investments, there has been a reduction in the value of higher education in the eyes of the public because there has, in fact, been a great shortage of jobs for graduates in the 1970's. The increasing costs of post-secondary education combined with the increasing unemployment and underemployment have contributed to a levelling off and slight decline in post-secondary enrollments, especially at the universities, during the 1970's.

Because the increased private costs of education have not been accompanied by any comprehensive scheme to provide students from low-income families with public subsidies, post-secondary education in North America has become more socially regressive and inequitable. Equality of educational opportunity has not advanced, and, in fact, may well be farther from reality than it was twenty years ago.

Human capital theory has been severely criticized along theoretical and methodological grounds during the past decade by sociologists, educators, and politicians, as well as economists. Criticism has come from both the left and the right. Conservatives disagree with the basic principles and philosophy of liberal school reforms. Marxists and socialists also disagree with basic principles of liberal school reform, but for different reasons. Even some liberals are upset with the slow pace of reform and the seemingly poor results. The public, likewise, is divided in opinion as to why educational reform has failed to resolve many of the problems it was supposed to resolve. There has been a general decline in public expectations of education and in willingness to support expensive social programs. The chronic world-wide economic recession has added additional pressure on politicians to abandon many of the programs, if not principles, of liberal educational reform. Human capital theory has survived the storms so far by adjusting the mix of efficiency and equity to suit the times. It remains to be seen how long human capital theory can continue to do this.

CHAPTER VI

Footnotes

[1] Providing equality of educational opportunity implies less inequality of educational attainment and educational achievement between social groups and classes, and, ultimately, less inequality in society.

[2] In contrast, programs in Britain designed to improve educational achievement of working class children have neglected the question of educational provision, which continues to be an issue. See Byrne, et. al., 1975, for theoretical and empirical analysis of this problem.

[3] However, as Gonick (1978B:66) points out "(t)he function of job training has been almost entirely shifted from business to the school system."

[4] Gonick (1978B:118) reports "(t)he consumer price index rose from 2.9 per cent in 1971 to 4.8 per cent in 1972 and 7.6 per cent in 1973." By 1974, inflation was 10.8% in Canada (Ibid.:119).

[5] For discussion of how wages but not profits and prices were kept down in Canada, see Gonick (1978B:114-128).

[6] The rate was even higher for post-graduates.

[7] Freeman (1975A:289) reports that

> ...by 1974 real college starting rates were 11 - 25 percent below those five years earlier and earnings relative to those of other workers 13 - 27 percent below 1969 levels. The figures thus demonstrate the existence of sizable downward alternatives in real college starting salaries during the market turndown -- the classic "price system" response to manpower surpluses.

[8] Freeman (1975A:305-307) states that the main reason for the "shortage" of -- or high demand for -- college graduates during the 1960's was because of the expansion of graduate education which effectively kept college graduates out of the labor market. In fact, "...the 'net number' of college graduates entering the market declined from the late fifties to 1967, due to the increase in graduate enrollments." Ironically, just as the supply of college graduates increased, the demand for college graduates declined drastically and dropped by over 50% in

the following five years (1967-1972).

[9] There were over 832,000 live births in 1967, 784,000 in 1970, and just over 600,000 in 1975 (Cantor and Roberts, 1979B:89).

[10] Growth refers to economic growth. Equity refers to distributional goals. Retraining the poor and the unemployed are examples of programs designed for this latter objective. Stabilization refers to economic stabilization. Manpower policy in Canada is used as a contracyclical tool to stabilize the economy. Programs developed for this objective include manpower training programs in periods of economic recession (Economic Council of Canada, 1971B:98).

[11] Critics of this policy point out that it was developed primarily as a response to pressure from private industry in a period of rapid economic expansion and shortage of skilled workers.

[12] Canadian Government research into the effects of adult occupational training in 1973 on future employment/unemployment patterns of trainees revealed that manpower training programs for the unemployed have not contributed to the permanent reintegration of those individuals into the labor force. Research indicates that recipients of unemployment insurance who had received manpower training had an equal chance as those who had never received training to reappear on claim. The major cause of this has been attributed to the worsening of the economy since 1972 and the "declining labor situation" which has had a "...negative impact on both the trainees and the non-trainees sampled."

[13] There is disagreement as to whether or not American manpower policies and programs were based on human capital theory. In narrow terms of employment and earnings or in terms of strict cost-benefit analysis, most of the manpower training programs were not efficient. Many of the investment were questionable from a purely economic viewpoint. (There were, however, social and psychological benefits.) However, they were based on the expectation of a continuing buoyant economy and low unemployment. The sharp increase in unemployment since 1970, when it was nearly 6%, has exasperated attempts to eradicate poverty through manpower training programs. Unemployment between 1964 and 1969 dropped from 5.5% to 3.5% in the United States (Lampman, 1971B:154). The lowest recorded unemployment in the United States was one year during World War II, when it was 2% (Ibid.:155). However, unemployment was 5.6% in 1972 and between 8% and 9% in 1975 (Plotnick and Skidmore, 1975B:177). Inflation began to accelerate in the United States in 1968 when prices rose 4.7% and 6% in 1969 (Lampman, op. cit.:155). Thus, stagflation has become firmly established in the American economy since 1970. In 1974 and 1975, inflation was running at 11% (Plotnick and Skidmore, op. cit.:111). Inflation weached 12% in 1979 and 1980. Politicians are putting the emphasis on fighting inflation in 1981 even though unemployment rates are higher as well. Most economists concur with the prediction that 1981 will be a year of severe recession.

[14] According to the Economic Council of Canada (1971B:104), approximately 80% of federal adult occupational training expenditures in the United States was spent on in-industry training. By comparison, the corresponding figure in Canada was less than 5% (excluding apprentices).

[15] This view states that because the poorest one-fifth of the population in the United States produces 3% of the total product but consumes 5% of the total product, it is economically efficient to eliminate poverty (Lampman, 1971B:29).

[16] In terms of eradicating poverty, inflation complicates the situation because, as Plotnick and Skidmore (1975B:177) point out, "(i)nflation adversely affects the net worth of the poor, whereas it increases the net worth of the middle and upper-middle income groups."

[17] In Canada, 76.9% of income earners are employees (Johnson, 1977B:40).

[18] Between 1950 and 1957, the median level of education in the United States increased one full year (Lampman, 1971B:123, footnote 6). Schultz (1961A:73) states that the stock of capital formed by education rose 8½ times between 1900 and 1957, whereas the stock of reproducible (non-human) capital rose only 4½ times. In 1940, 15% of 18-21 year old Americans went to college.

Schultz (1971B:177) states that

> (i)n retrospect, given the type of growth that has characterized our economy and the remarkable increase in the stock of education per worker in the labor force, the gains in elementary and secondary schooling and in higher education taken as a whole have been instrumental, it seems to me, in reducing the inequality in the distribution of personal income...The rise in the investment in education relative to that invested in nonhuman capital increases total earnings relative to total property income, and property income is distributed much less equally than the earnings of persons from labor. Therefore, investment in schooling reduced the inequality in the distribution of personal income. The hypothesis proposed here is that these patterns of investment are an important part in the explanation of the observed reduction in the distribution of personal income.

Although Schultz states that there has been a lessening of the inequality in the distribution of personal income, he admits that, although "(t)his tendency has become a well-established fact, (but) explanations of this phenomenon are still in their infancy" (Schultz, 1972A:65). Furthermore, Schultz (Ibid.) terms the reduction "modest". Schultz (Ibid.) also believes that progressive taxation and welfare programs have done very little, if anything, to change the distribution of personal income. Rather, Schultz (Ibid.) believes that "(t)he increases in the demand for skills and knowledge and the response of the supply that is under way in modern economies lead to the accumulation of forms of human capital that accounts for most of the observed tendency under consideration" (e.g., a lessening of the inequality in the distribution of personal income).

[19] See "Post War Changes in the Size Distribution of Income in the United States," American Economic Association Proceedings, Vol. 60, May 1970:247-260.

[20] Lampman (1971B:46, footnote 3) points out that "...inequality among non-whites is greater than among whites, and inequality among the old is greater than among the young."

[21] Minimum wage legislation does not cover all workers. Students, part-time employees, workers in certain types of jobs, etc., are not included. Furthermore, women in some provinces receive lower minimum wages than men (Johnson, 1977B:23). Minimum wage legislation was passed by the provinces in Canada and by the states in the United States prior to federal minimum wage legislation. The first minimum wage legislation was passed in 1917 in Alberta. However, minimum wage legislation did not apply to men until 1925 in British Columbia and the 1930's in Saskatchewan, Manitoba, Ontario, and Quebec. Furthermore, New Brunswick, Newfoundland, and Prince Edward Island did not pass minimum wage legislation until after World War II (Ostry and Zaidi, 1972B:257-258).

[22] General minimum wage rates in 1970 varied from $1.25 per hour to $1.65 per hour in Canada, whereas the poverty line for a family of four required $2.48 per hour (Johnson, 1977B:23).

[23] Johnson (1977B:25-26) reports some of the details from Maslove's study in the following quotation:

> For families receiving less than $2,000 in earned income, taxation from federal, provincial and municipal sources took up more than one hundred per cent of that income in every province other than Manitoba. In other words, a significant part of welfare -- even though such was far below poverty line standards -- went to pay taxes. The Ontario situation was particularly scandalous. There taxes for low income families were 151.1 per cent of earned income. Above the

> $2,000 level there was a sharp decline in taxation rate to the $3,000 to $3,900 level, then a gradual decline to the $12,000 - $14,000 level. Above the $15,000 level of family income the proportion of earned income that went into taxation rose slightly, although, as Maslove pointed out, capital gains had not been included in his calculations. In all probability, if all income had been included, the tax load above $15,000 was below that for lower levels of income.
>
> Moreover, when transfer payments of all kinds were included, Maslove discovered that the poorest income recipients still paid a much higher proportion of their income in taxes than did those who were better off. Indeed, for those receiving less than $2,000 per year, the total tax load amounted to more than 60 per cent of all income. In contrast, those receiving more than $15,000 income per year paid less than 35 per cent of all income in taxes.

The National Council of Welfare (1976B, 1978B) supports this view in their more recent research on this topic.

[24] Lampman (1971B:26-27) points out that he and many other economists seriously doubt that progressive income taxation will reduce income inequality. Rather, such a tax system is seen as an attempt by the state to take over the economic power of the rich. Thus, Bertrand de Jouvenel (1951B:73) wrote that it is "...in effect, far less a redistribution of free income from the rich to the poorer... than a redistribution of power from the individual to the state." Although there is some redistribution of income, it is not enough to fund the social welfare programs for which the state assumes responsibility. Conservatives view the emergence of the liberal state as a "disaster". De Jouvenel (Ibid.:77-78) writes that

> (i)nsofar as the state amputates higher incomes it must assume their saving and investment functions, as we come to the centralization of investment. Insofar as the amputated higher incomes fail to sustain certain social activities, the State must step in, subsidize these activities, and preside over them. Insofar as income becomes inadequate for the formation and expense of those people who fulfill the more intricate of specialized social functions, the State must see to the formation and upkeep of this personnel. This results in a transfer of power from individuals to officials, who tend to constitute a new ruling class as against that which is being destroyed.

[25] The Canadian Government established the Canadian Student Loans program for post-secondary students in 1964. Some of the provinces developed their own programs to supplement this. Quebec started its own loan and financial aid program for post-secondary students in 1966. Newfoundland abolished all fees for first year resident students at Memorial University in 1965. This was later extended to cover higher years and living allowances.were also paid to students. By 1969, however, fees were reinstated.

[26] Federal government support to higher education in Canada rose from 14.3% of university revenue in 1954/55 to 43.9% in 1969/70 to 48.6% in 1971/72 (Munroe, 1973A:42-44).

[27] Because education is labor-intensive and there is little likelihood of increasing productivity in the educational sector, costs will continue to escalate, vis-a-vis other sectors of the economy, just to keep those employed in education at the same relative standard of living. Graduate, professional, and technical education and training have the highest per unit costs and are the least amenable to mechanization (Buttrick, 1977B).

[28] Financial aid to post-secondary students includes bursuries, grants, scholarships, loans, and work-study jobs. The United States Government pays 80% of the wages received by the students and the university which provides the jobs pays only 20%.

CHAPTER VII.

SUMMARY AND CONCLUSION

In the preceeding chapters we have traced the development of an idea which has become so well-entrenched and fashionable in academic and political arenas that it has been enshrined in public policy and become part of our collective consciousness. The idea that knowledge and skills possessed by individual workers enhance their productive capabilities and capacities such that they constitute capital in the same sense that the physical means of production constitute capital, i.e., generate a stream of income, is what has come to be called human capital by some neo-classical economists.

Human capital theory itself, however, is part of the paradigm of functionalism which dominated all the social sciences during the 1950's and 1960's. In sociology, technological functionalism was the most accepted view of our modern, complex society. Within technological functionalism, the technical-function theory of education was the widely-accepted theoretical framework for sociology of education. The macro-level image of the "post-industrial"[1] society and the belief that Western industrialized capitalist countries have entered that stage of development since World War II is common to both human capital theory and the technical-function theory of education. These ideas have been voiced publically so much that belief in them (that we are indeed living in the "post-industrial" society) is common to academics, politicians, and the general public.

In this thesis, we examined human capital theory and the influence that it has had on public policies, and on educational policies in particular, from the sociology of knowledge perspective. Furthermore, we have rejected the functionalist paradigm, and human capital theory in particular, because it has been found lacking on both theoretical and empirical grounds to provide an adequate explanation of social reality.

Some of the issues and questions which human capital theory has failed to adequately explain include: 1) the expansion and subsequent contraction of educational systems; 2) changes in the distribution of personal income; 3) inequality of opportunity for individuals from different groups; 4) the relationship between cognitive and technical skills and jobs; 5) the relationship between education and adequacy of job performance; 6) the high unemployment rates and underemployment of well-educated individuals; 7) the lack of economic growth despite a better educated labor force; and 8) the class structure of society and the importance of ownership of physical capital for class determination.

Education has been identified by Schultz and other human capital economists as the main component of human capital which can be, and therefore should be, increased and improved in the Western industrialized capitalist countries. The situation is more complex in the underdeveloped countries, where other components of human capital are also greatly underdeveloped.

One way of determining the validity of a theory is to determine the effectiveness of policies derived from it. Halsey (quoted in Byrne, et. al., 1975B:32) states that "(t)heories postulate paths to stated ends, therefore to test the validity of a theory is to evaluate the effectiveness of a policy which expresses it."

The expectations of public policies, and especially educational policies, which have been heavily influenced by human capital theory have not been met.

One such expectation was that increased education, and hence income, of workers would result in a significantly more equal (or less unequal) distribution of personal income. Along with this expectation was the belief that poverty could be greatly reduced, if not eliminated, by an increase in quality and quantity of education and training programs for the poor.[2] Just as individual productivity and income were attributed to better educated workers, it was believed that national productivity and income were dependent upon a well-educated labor force. Thus, public expectations on all levels of education were vastly increased during the 1960's in the developed and underdeveloped countries alike, with the common expectation that national productivity and growth would continue to increase and create more wealth for both the nation and the individual workers.

Social science research in the 1950's and 1960's was premised on the belief that economic growth rates would continue to increase, that demand for highly educated workers was infinitely elastic, and that the occupational structure would expand and become more differentiated and specialized at the professional and paraprofessional (technician) levels. Demand for unskilled labor was expected to drop significantly, with many unskilled occupations disappearing due to increased automation (capital substitution for labor).

There was, in fact, rapid expansion of the tertiary (service) sector of the economy after World War II. Demand for white collar workers was so great that the proportion of women in the Canadian work force increased from 19.8% in 1941 to 27.8% in 1961 to 35% in 1971, whereas it stood at 13.3% in 1901 (Scheter, 1977A:398). The increase in demand was greatest for salaried clerical workers and salaried professionals accounted for the second largest increase in demand (Ibid.). Porter (1965B) has documented that much of the demand for professionals and highly skilled workers in Canada during the 1950's was met by immigration from Europe.

Technological changes have affected the production process itself in the advanced capitalist states and this has had repercussions in the social relations of production as well. Advances in science and technology have had the effect of accelerating production, increasing productivity and economic growth as well as cheapening commodities produced. There has been a corresponding change in the nature and structure of occupations as well as in and between social institutions. The changing social, economic, and political reality experienced in the transition to monopoly capitalism, or "mature" capitalism, contains new contradictions. The division of labor has become more specialized, differentiated, hierarchical, fragmented, and more bureaucratic than ever before. There has been an increase in fragmentation of tasks accompanied by loss of control by workers over their work and a subsequent increase in alienation. The petite bourgeoisie has been virtually incorporated into the salaried labor force, many jobs have been eliminated by automation, and the reserve army of surplus labor has been increased.

Another very important idea central to the theory of "post-industrial" society, and integral to both human capital theory and the technical-function theory of education, is that class society is being transcended by the increased importance of human capital vis-a-vis material capital in the generation of income, and hence wealth. Educated workers are considered "capitalists". Their "ownership" of knowledge and skills necessary for the production process enable educated workers to generate their own stream of income just as the owners of material capital are able to generate a stream of income from the use of their capital in the production process. The fundamental class distinction and potential conflict between capital and labor are ultimately "eliminated" by this human capital conceptualization of "post-industrial" society.

The focus on achieved attributes of individuals as the primary determinant of their socio-economic status has led to the popular belief that the system is meritocratic and as such, equitable. Unequal rewards in society are accepted by most as legitimate because the competition for success is seen to be open to all. Individual talent and motivation are thought to be the only traits necessary for economic success. Economic inequality[3] per se is not considered by most to be problematic, as long as it is based on achievement and merit.

One's failure in the educational system and/or one's failure to achieve upward social mobility are considered the failures of individuals, not of the system. The individualization of failure prevents people from seeing the structural determinants of economic inequality. The success of economic individualism as a social myth has been boosted by belief that public policies have been able to provide equality of opportunity.

These expectations were part of the vision of post-industrial society and of the paradigm of functionalism. As such, they had a significant impact on public policy, and on educational policy in particular. The primary influence has been the public subsidy of post-secondary education and significantly greater expenditures on elementary and secondary education, made possible by direct federal intervention in education both in Canada and the United States. The failure of these policies to sustain economic growth, to improve the relative as well as the absolute wealth of workers (e.g., reduce inequality in the distribution of personal income), to significantly reduce poverty, to provide equality of opportunity to all groups in society, and to provide employment commensurate with the education of workers has resulted in political, economic, and social crises. Limitations of human capital theory and the technical-function theory of education are made more apparent in the context of these political, economic, and social crises which have plagued capitalist societies, developed and underdeveloped alike, since the late 1960's.

Direct state intervention in the economy was considered necessary for the resolution of the serious contradictions of advanced capitalism which had reached culmination with the Great Depression. The development of Keynesian economics and the philosophy of corporate liberalism provided the framework for this new function of the state. State responsibility for regulating and mediating the economy was established in the United States by President Roosevelt with the New Deal[4] during the late 1930's. Acceptance of Keynesian economic principles and state intervention in the economy did not occur in Canada, however, until after World War II[5] (Wolfe, 1977A:259).

The Great Depression spawned the need for national economic planning by the state as well as the need for state responsibility for direct regulation of the economy.[6] According to David Wolfe (1977A), this interventionist and regulative role of the state has led to an expansion of its traditional functions to include responsibility for both accumulation and legitimation. The balancing of these two potentially conflicting functions by the state has led to the development of conflict, and at times, crisis management.

In addition to regulating and mediating the economy, the state has come to regulate and mediate class conflict, and ultimately, social control. The establishment of the liberal welfare state[7] during the past fifty years in North America and Europe has shifted much of the responsibility for social and economic well-being from the individual to the state. This puts the state itself in a very vulnerable position; social and economic crises now have the potential to become political crises[8] and the authority and legitimacy of the state itself is threatened.

State regulation of the economy necessitated direct government involvement in education. In most of Europe and the underdeveloped countries, education has been the responsibility of the centralized state for a long time. In Canada and the United States, however, education is a provincial or state responsibility. Therefore, constitutionally, the federal government in either country does not have jurisdiction over education. Nevertheless, the federal governments in both countries have found it necessary to intervene directly and indirectly in education.[9]

Human capital economists were prominent in a strong lobby by social scientists in the United States during the late 1950's and early 1960's which presented an economic rationale for direct federal government intervention in and funding of education. Because most social scientists believed the advanced capitalist countries of North America and Western Europe were evolving into "post-industrial" society and because of the great political concern over international competition with the Soviet Union during the Cold War era, development of scientific and technical expertise became a national priority. Removal of socio-economic and psychological barriers to the development of talent, and thus, enhancement of upward mobility for those members of the subordinate groups who possessed potential talents valued by society, became the political goal[10] on the basis of its perceived economic value for efficiency and rationality.

The debate over schooling during the 1950's can be viewed as part of the struggle between conservatives and modern liberals over the powers, functions, and roles of the state. By 1960, it was evident that liberalism would prevail. It is in this context that human capital theory can be seen to have had an important impact on both the governmental levels and on the level of public opinion. In fact, much of the product of social science research as well as the functionalist paradigm was utilized by liberals for their own political ends.

Human capital theory as well as the technical-function theory of education focus primarily on the economy, and in particular, on the relationship between the structure of occupations and the structure of the educational system. The discussion of equality of educational opportunity must be seen within the context of equality of opportunity for economic success in society because the primary aim of providing equality of educational opportunity is to enable "talented" members of subordinate groups (the so-called "minorities" or "disadvantaged") to achieve upward social mobility.[11] It is the economic goal of government policies and the economic role of education which human capital theory and the technical-function theory of education address themselves.

While the world capitalist economy has experienced sustained economic and monetary crises since 1970, welfare states have had to contend with a fiscal crisis[12] which threatens the very survival of the welfare state. Attempting to reduce sky-rocketing national debt, liberal and social democratic governments in the advanced capitalist countries have cut back on expenditures on social welfare and education, on those very programs which were the fruit of liberal political reforms since the Great Depression.

Thus, with the problems of increasing inflation[13] and unemployment, accompanied by a levelling off and decline in economic growth rates, it seemed apparent to many that the previously accepted relationship between education and wealth needed to be re-evaluated. The tremendous expansion of education and subsequent upgrading of the labor force did not seem to have resulted in a sustained increase in economic growth nor in provision of equality of opportunity for all groups in society.

Human capital theory brought education into the realm of economic analysis by treating it as an institution which provides a public service by functioning to increase capital accumulation and economic growth. Thus, the "economic value" of education is of central concern to human capital economists.

There were two drastic alterations in the demand for education within a decade. High demand for education in the early 1960's, which human capital theory appeared to explain, dropped significantly in the late 1960's. Since then, it has not appeared to be efficient or rational for governments to continue investing in education. There has been a resurgence of the belief that schools consume capital rather than produce it. Even liberals now think that education is consuming more capital than can be productively utilized.

Thus, education was considered out of step with the economy during the 1950's and early 1960's because of the shortage of highly educated workers and the high demand for them. By the late 1960's and early 1970's, this was reversed; rather than lagging behind the economy, education became "overheated", consuming a great amount of social resources and "producing" large numbers of highly educated individuals, most of whom could not be employed to their productive capacities. Demand for workers, whether highly educated or not, had dropped significantly as the world economy contracted in stagflation.

In times of fiscal crisis, governments are trying to eliminate as many non-productive investments as possible -- to invest their limited capital in sectors which will yield the highest rate of return. For example, there has been a definite shift away from massive subsidies to post-secondary education and an increase of cost to individuals. Schultz views this shift as leading to more rational decision-making by individuals and a realignment of their expectations with the realities of the market place. This has also been viewed as a rationalization of public policy, since physical capital formed by public investment is not transferred to individuals as gifts. As such, it is within the scope of human capital theory. Thus, governments have developed student loan programs as well as other financial aid schemes for students.

The rationale for educational reform then, as it often has been, was to restore social and economic (and one could add, political) equilibrium. Just as expanding education in the previous decade was rationalized in terms of economic needs and efficiency as well as social equity, the contraction of education by austerity budgets and lowering of public subsidies as well as expectations[14] were done for the same reasons when the economy went into the new crisis of stagflation.

It is difficult for individuals, just as it is for governments, to continue to place high expectations on the educational system in light of the lack of economic demand. Without economic demand, and hence employment, it is difficult, if not impossible, to achieve any upward mobility.[15] It is even difficult for many to maintain their current status. Rather, many middle-class white males have been, for the first time in at least twenty-five years, experiencing downward mobility. Underemployment has become a major problem, along with unemployment. One could view labor force stratification in terms of some employed, many underemployed (mostly the well-educated), and many unemployed (mostly those with high school education or less).

Just as the worsening economy presented an economic crisis, the liberal policies of most Western industrialized capitalist countries, including the basic concept of the welfare state, came under criticism for being unable to deliver what they had promised.[16] The political crisis of liberalism, then, was brought about by the economic crises experienced since the late 1960's.

By the mid-1970's, there was strong support for neo-conservatism by the general public as well as by many academics and politicians. With this, governments have changed their economic, social, and educational policies in an attempt to deal with the change in social reality and the many contradictions it has exposed.

Since 1970, federal governments in both Canada and the United States began serious consideration of a negative income tax, a form of guaranteed minimum income, to replace all existing social welfare programs and services in an effort to rationalize and economize their expenditures.[17] The fiscal crisis of the state was a major concern of both governments, as it was elsewhere. Though governments had taken responsibility for economic growth, and the power to intervene in the economy to ensure that growth, they were experiencing great frustration at being unable to resolve the new crisis of stagflation.

Government responsibility for maintaining aggregate demand (employment, production, and purchasing power), had itself come under question, even by liberal and social democratic governments. Canadian (Liberal) Finance Minister, Jean Crétien, expressed this new conservative bent when he said that

> (p)eople blame the government and put too much faith, at the same time, in the government. The intervention of the government has to be marginal, under the present circumstances...The economy is decided by millions of decisions on a daily basis by individuals. It is a collective mentality, and a Minister can hope, through his taxes, to create a climate that is good (Gonick, 1978B:124).

Gonick (1978B:124) points out that

> (w)hat this amounts to is government abdication from responsibility for directing the economy, a direct denial of the 1945 commitment to maintain full employment. It is also an outright admission that the state operates only at the edge of the economy, able, at best, to nudge it slightly but powerless to alter its basic course. In particular, Crétien is saying that he has no answers for stagflation, that he can solve neither unemployment nor inflation "under present circumstances".

Furthermore, perhaps as much to lower people's expectations so as to be "in touch with the market place" as to appease business,

> (t)he government budgets over the past three years have been deliberately designed to sustain a massive amount of unemployment. They are budgets of planned unemployment. Their goal is to deliver a docile, worried, labour force, one that is willing to work for less, that is willing to heed their master's voice, and that is less prone to strike (Gonick, 1978B:124-125).

Increased unemployment affected the public sector as well. In February 1978, Jean Crétien announced that

> (w)e were able to put all the governments together, from NDP to Socred, and say that the public sector should take less growth than the gross national product, that foreign investment is welcome in Canada, that compensation in the public sector should no longer be the pacesetter (Gonick, 1978B:125).

After the failure of mandatory wage and price controls to control inflation in North America, the Canadian and United States governments have taken a neo-conservative position regarding the responsibility and functions of the state. "...(G)overnment leaders applauded private industry as the creator of jobs and wealth and pledged to get out of the way and let private enterprise show what it could do" (Gonick, 1978B:125-126).

Social and educational policies, like economic policies, are limited by political considerations, the availability of financial resources, and research available to political decision-makers, often of a conflicting or unclear nature (Byrne, et. al., 1975B:13). There have been significant changes in all three of these variables since World War II.

On the macro-level, Carnoy (1979B:2) reminds us that the state is not

> ...a benign spectator in the process of economic and social change...(C)hanges may occur because of a particular development process, but the process itself is not unalterable or uniquely optimal; if certain trends toward equality or inequality occur, it is because the type of development chosen generally suits the groups with economic and political power.

The shift of responsibility for economic decision-making and economic well-being from the state to the individual cannot be viewed as politically neutral. Likewise, the shift in responsibility for scholastic success and educational attainment as well as for wastage of talent from the state to individuals is not neutral. These issues are public issues as much as they are private ones (Husén; Byrne, et. al., 1975B:45).

Social science theories, and the paradigms to which they belong, are themselves social products. "(S)pecific theories, and their accompanying methodologies, do not arise in a social vacuum, but rather are rooted in material relations of production and therefore serve specific economic and political interests" (Stirling and Kouri, 1979A:169).

The psychological theories of learning and achievement which prevailed prior to the mid-1950's were based on the psychological model of inherited ability as measured primarily by I.Q. tests. The conservative, individualistic position pervaded these theories (Byrne, et. al., 1975B:19).

By the mid-1950's, modern liberal ideas began to permeate psychological theories. The idea that environment shapes and influences behavior and measured intelligence was widely accepted. The distribution of ability and educational attainment were viewed as more dependent upon environmental (social class) factors than on genetic ones. This was all part of a movement in political, economic, and social terms away from individual responsibility to state and social responsibility. Socio-economic structures took precedence over individuals. Attributes of individuals were seen to be shaped by these structures. Thus, during the late 1950's and 1960's, the class-culture model of educational attainment developed and prevailed over the previous more conservative, aggressively individualistic psychological one that viewed individuals as socially and economically "fixed" by genetic endowment.

There has not been agreement about the kind of policies that should be developed, the level of intervention, or even what effects education has on society. There has also been disagreement on how much educational reform will affect society -- or even whether educational reforms will themselves be limited by society. These disagreements have been both political and philosophical (Byrne, et. al., 1975B:28).

> (M)any...fail to appreciate the structural nature of the concept of class. As a result they fail to distinguish between those variables relating to educational attainment which describe individuals and those which relate to the properties of the system in which people find themselves. Put another way, no firm distinction has been made between system inputs and personal inputs into the process of educational attainment (Byrne, et. al., 1975B:28-29).

Although socio-economic structures have been recognized as having significant influence on the educational attainment of individuals, educational failure has been personalized, just as the liberal concept of class has been trivialized[18] (Byrne, et. al., 1975B:29;31).

The question whether or not wastage of talent rates are to be viewed "...as the aggregate of thousands of misinformed, disinterested decisions about the worth of education, or the predictable outcome of the structure and operation of education systems at national and local levels" depends on whether or not one considers educational attainment to be more attributable to genetic endowment or the structural inequalities of class society (Byrne, et. al., 1975B:30-31).

Halsey reminds us that "(a)n adequate theory must also attend to those structural inequalities of resource allocation which are integral to class society" (quoted in Byrne, et. al., 1975B:31).

The class-cultural model of educational attainment, like human capital theory, is part of the paradigm of functionalism. In this paradigm, value consensus (or ideological agreement) on basic societal issues is assumed to be the norm. It is considered to provide a moral foundation for society, facilitating stability and harmony between groups. Education is considered a key institution for the maintenance of this consensus.

A thorough critique of functionalism is beyond the scope of this thesis. Rather, we are pointing out some faults with the paradigm which we consider to be critical. Human capital theory, the technical-function theory of education, and other sociological and psychological theories which are part of the paradigm of functionalism have faults in theory and in research which contribute to the lack of congruence between the goals of public policies developed under the influence of these theories, and the results.

> If legislation is based on inadequate sociological of psychological theories either about learning potential or the interrelationship between systems of education and social structures, it is inevitable that the manifest goals of such legislation will not be realized (Byrne, et. al., 1975B:18).

This does not mean that the fault for the failure of public policies lies entirely with social science research. Politicians often are either not aware of research results or are unable or unwilling for a variety of reasons to utilize them.

> It is a characteristic of public sector decision-making in the United Kingdom that it is ad hoc and partial. By this I mean that it is frequently a matter of responding to events rather than anticipating and preparing for them, is usually lacking in basis of empirical knowledge and is always pursued without due regard to many crucial interrelationships (Peston, 1969A:70).

When graduate unemployment and underemployment became widespread in the early 1970's in North America, a manpower planning approach to educational planning and job placement was undertaken by the Canadian and United States governments. With a significant drop in aggregate demand, the economic opportunities provided to individuals by their education alone were revealed to be very poor, with the exception of a few occupations -- primarily in the health care field.

Human capital theorists stated that the problem of unemployment and underemployment was not due to lack of aggregate demand, but to the quality of the labor supply. In other words, individuals were not making rational decisions "in touch with the market place" when deciding what type of education or training they would pursue. Human capital economists persisted through the 1970's in stating that there was still demand for highly educated people to fill senior positions in the labor market. The problem of unemployment and underemployment was still conceptualized by human capital economists as one of labor quality not lack of jobs.

The limits of educational reform, and of life chances, are well set by the labor market -- especially in times of poor demand. This has been realized by many since opportunities for employment have become much scarcer for most people during the 1970's.

The labor market itself must be seen within the class structure of society. While analysis of the labor market[19] lies outside the scope of this thesis, it is relevant to our analysis to realize that structural characteristics of the labor market are more important than worker attributes in the determination of who gets what jobs and for what rewards. The hierarchical structure of occupations in advanced capitalist societies serves a political function (e.g., enhancement of capital accumulation).[20] The political function is obscurred by emphasis placed on economic explanations.

While some human capital economists have conceded that cyclical unemployment, not education, is the most important factor in explaining income inequality in the United States[21] the emphasis of mainstream human capital analysis has continued to be on the importance of matching demand with an appropriate quality of labor supply. Human capital theory completely ignores the political functions of education and labor market dynamics. Questions of educational attainment, equality of opportunity, and economic inequalities cannot be adequately understood by focusing on purely economic considerations and ignoring the political ones.

> ...(I)t is to be expected that education will reflect what key groups in society regard as important educational aims and these in turn will reflect what such groups regard as important social and economic needs. Historically, of course, such needs have always been defined in labour market terms...
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> It does need to be emphasised, however, that the labour market is a fundamental constraint on the education service of any society. In a given locality the labour market sets the boundaries for social-class formation (Byrne, et. al., 1975B:45).
>
> ...(L)ife chances in education are deeply implicated in the logic of operation of a social market economy. What can be provided as a framework of opportunity is determined, ultimately, by the character of local labour markets. What is provided as education is the outcome of political compromise. What can ultimately be achieved by any group of children is limited by the hierarchical character of work organisations. In short, educational attainment is a public issue not a private achievement, an artefact of the distribution of power in society rather than the distribution of intelligence (Ibid.:46).

Carnoy (1971B:1/17) reminds us that

> (e)conomists first became interested in education because of its role as an input into economic growth...the treatment of education as an investment in human capital and the rate of return analysis associated with it is seen by many economists as the basis of understanding the relationship between education and the economic system.

Research by human capital economists indicates that "... average pecuniary earnings of individuals with more schooling are higher than earnings of those with less schooling" (Carnoy, 1971B:1/17).

It is also a well-known fact that if education is publically subsidized, many more people will attend school than would if it was not subsidized. Carnoy (1971B:1/17) points out that "...the contribution of schooling to different groups in the society varies according to their political power or their ability to gain control of resources associated with elite-oriented education."

While human capital theory focuses on an economic analysis of education which appears to be scientifically-based and hence politically neutral (though amenable to modern liberal concepts), sociologists and political economists recognize the political function of education. Carnoy (1971B:1/6) points out, however, that most sociologists have recognized the elite bias of education but have not extended sociological elite analysis[22] to the economy.

> Social scientists have long recognized this elite bias in the educational system, but they have chosen to ignore that a system with this bias bases its strategy of skill production primarily on political grounds -- on income and status considerations -- and only secondarily on considerations of maximizing economic growth or the potential social contribution of all members of the society (see Smyth, 1970). Economists assume, tacitly, that all students (parents) can choose the amount and nature of skill production desired. They do not recognize that the institutions themselves determine students' future roles through tracking, property tax base financing, and the nature of school social relationships (on this last part, see Friedenberg, 1965).

Carnoy (1971B:1/7-1/8) has developed

> ...a dynamic model of rates of return to different levels of schooling based on the elite-formation school system... The model explains how a monopoly rent to investment in schooling shifts over time to higher and higher levels of schooling and is eliminated when non-elites dominate the enrollment of any schooling level.

The political function of education in underdeveloped countries, e.g., elite-formation, has been recognized by economists but only as a necessary step in modernizing the economies.[23] Most of the literature dealing with elite formation in underdeveloped countries has been written by sociologists, not economists.

Human capital theory ostensibly provides politicians, academics, and the general public with an economic rationale for the political intervention in education which during the 1950's and 1960's resulted in large-scale expansion, mostly at public expense, of the educational system and an increase in participation rates and educational attainment. In the 1970's, human capital theory provided the economic rationale for the political decision to drastically lower public expenditures and subsidies to education and a disassociation of the state from responsibility for individual educational decision-making and eventual occupational attainment.

This economic rationale leaves out the political rationale for such decisions and policies. Although sociologists have indicated the beneficial effects of expanded education on social as well as economic development, and on the contribution of higher education to upward mobility if not entirely to elite formation, they have not paid much attention to their limits. Not much attention has been to the problem of conflict between human capital elites and physical capital elites.[24]

Comprehensive discussion of elite analysis and the political functions of education are beyond the scope of this thesis; however, cursory reference to this issue is necessary in order to highlight the inadequacy of the economic focus of human capital theory.

> Ignoring the structure of the systen has influenced the type of questions asked by economists and often caused misinterpretation of their results (Carnoy, 1971B:1/6).

This is why, for instance, rates of return to investment in education in the United States, Canada, Western Europe, and underdeveloped countries are similar despite being "...at different stages of development, with significant differences in the rate of expansion and average level of schooling..." (Carnoy, 1971B:1/6). The seemingly a-political nature of human capital theory also accounts for why the human capital explanation for differences in rates of return to different groups in society with identical levels of education are so weak and implausible. Carnoy also states that some of the problems encountered in production function analysis of education may also be due to the lack of consideration of differential education for elites and non-elites.[25] Viewed from a political perspective, "(s)chools may be efficiently producing a different set of outputs for elites than for non-elites" (*Ibid*.:1/7).

Although the focus of human capital theory has been primarily on economic relationships between education and occupation, it did provide support for the political rationale for expansion, democratization, and subsidization of post-secondary education during the late 1950's and early 1960's. This political rationale was two-fold. On the international level, there was the outright competition for scientific, technological, and ideological dominance. Nationalism was strong during the 1950's and early 1960's. In addition, there was also strong public pressure on politicians to support public subsidization of post-secondary education. This social demand for expanded tertiary education was related to the public perception of post-secondary education as the institution most suitably geared to employment preparation, and hence, as the new vehicle for social mobility. The idea that post-secondary education is necessary for productive employment and as a means of achieving social equity is not new. Subsequently, with the development of the investment model of education by Schultz and the resulting growth and impact of human capital research by economists, politicians were provided with the economic rationale which suited their political rationale for direct public control over and subsidization of post-secondary education.

> It was definitely the use of post-secondary education as a social escalator and, for a time, as an indispensable tool in the race with the Russians that justified the unprecedented infusion of resources into post-secondary education both in the United States and in Canada.
>
> ...to put it rather bluntly, the introduction of an overwhelming public support has resulted in the politicalization of post-secondary education. Since the government is the main agent in this process, it will, whether it likes it or not, bear the brunt of responsibility for whatever uses and abuses our society makes of post-secondary education (Ontario. Commission on Post-Secondary Education in Ontario, 1971B:13).

Thus, the political role of education supercedes the economic role. Income and status distribution for social reproduction of elites and non-elites are the primary political goals of education; the economic and social contributions of all members to society are secondary goals (Carnoy, 1971B:1/6).

The expansion of education has led to rising expectations which, for many, have not been met. The role of schooling in society and the benefits to individuals of increased educational attainment have come under critical reassessment by governments as well as by individuals. Research has proven expectations of increased schooling of the work force leading to increased economic growth, a lessening of the inequality in the distribution of personal income, and an increase in social mobility to be false in both the developed and the underdeveloped countries (Carnoy, 1979B:1).

Attempts by governments to balance economic efficiency and social equity since the late 1950's have not resulted in a relative, over-all improvement in the standard of living for most workers. While it was possible for governments to sponsor programs designed to enhance social equity at the expense of some economic efficiency during the 1960's, this has not been the case during the 1970's. The result of this reversal of priorities has been a generalized, political crisis -- a crisis of legitimation.

The legitimation of increasing economic inequality has come under question. It is a political problem because "...legitimation of economic inequality is critical to the political defense of the fundamental institutions which regulate the U.S. economy" (Bowles and Gintis, 1977B:248).

The legitimation of unequal rewards has ostensibly been based on merit, which itself has generally been measured in terms of educational attainment. This way of stratifying society has itself come under question along with the legitimacy of educational credentials.[26]

There is an attack on credentialism both in academic circles[27] as well as in schools themselves, reflected by the high rates of truancy and crime. The authority and legitimacy of education has declined. During the 1970's, "...schools have lost their authority in the minds of some people" (Squires, 1979B:197).

Affirmative action programs designed to enhance equality of opportunity have come under attack for undermining meritocratic principles,[28] and for lowering the standards and quality of education.[29] Racism and class conflict have also intensified as education looses its status as legitimator of the social order[30] (Squires, 1979B:197).

If we accept that "...schooling is a servant of the economy and society...[and that] the economic and social structure of all but a few societies are dominated by elites which [sic] use schooling to further their own needs and goals" it is not difficult to understand that the "...purpose and effect of school expansion cannot be separated from elite control: the benefits of additional schooling accrue to the elite. Non-elites are left largely with illusions and disillusions" (Carnoy, 1971B:0/2). Likewise, "...the argument that increased schooling leads to improved social mobility and income distribution is ambiguous at best...The more unlike in culture the elites and non-elites are, the less possible it is to reach equality" (Ibid.:0/2;0/4).

Just as human capital theory and the technical-function theory of education provided an economic rationale for the state to intervene in education, providing huge public subsidies and encouraging higher rates of educational participation for the non-elite, so those same theories are being used as a rationale for reversing these very policies. In the former case, the expansion of education during the 1950's and 1960's was consonant with the social demand for education, with the high demand for well-educated workers, with high rates of economic growth, and with seemingly increasing prosperity for all. In the case of the latter, however, the "cooling-out" function of education has not been working smoothly.[31] Despite the highly stratified and diversified nature of education nowadays, underemployment and unemployment are problems which chip away at the authority and legitimacy which education and, indeed, the state itself have had in perpetuating the myth of an open society characterized by equality of opportunity for all.

Contradictions which have intensified throughout the 1970's will not be resolved by state abdication of responsibility. The emphasis on individual decision-making and responsibility is illusory and temporary. We share Gonick's (1978B:127-128) opinion that

> ...some form of central economic planning is inevitable in all industrialized countries. Without it, capitalism as an economic system is unlikely to survive. The strains, contradictions and problems...demand some new rationalizing effort...The question that matters today in Canada is not planning versus no planning, but planning by whom and for what objectives.

Education has taken much of the brunt of the turmoil, controversies, contradictions, and conflicts which have surfaced in most advanced capitalist countries since World War II. The debate which raged in the political arena as well as in academe between social scientists about the relevance and, indeed, fitness of the educational system in meeting the "needs" of the economy, of society, as well as of individual students, was primarily a clash between conservatism and liberalism and intensified by the ideological warfare with the Soviet Union.

That debate of the 1950's and 1960's continues today but under very changed socio-economic and political circumstances as well as under very different terms. The issue of the fitness of the educational system serving the "needs" of the economy continues but a more important issue is that of the function of education. Now we are being told that education is for self-fulfillment and culture, not necessarily for employment preparation; that life-long education means we no longer are denied equality of opportunity if we fail because the doors are always open to go back and try again. It is still too early to know whether or not these new strategies will work, whether expectations will be lowered so that adjustment to more oppressive, alienating conditions is achieved without more turmoil.

One thing is clear. Education has been used, and continues to be used by the political elite of the ruling class as a key institution for the legitimation of changing social, economic, and political realities and to generate ideological support for the kinds of public policies and strategies used to minimize the impact of these crises.

CHAPTER VII

Footnotes

[1] Central to the theory of "post-industrial" society are the posited effects of science-based technological innovations on the occupational structure (as well as on the structures of power and authority) and the focus on the university as the key institution in society (because it produced theoretical and practical knowledge and technical skills crucial for the maintenance and advancement of a "post-industrial" society).

In the "post-industrial" society, a new factor of production, expert knowledge, emerges and eliminates the "antagonistic relations of capitalist production". Bell (quoted in Thatcher, 1978B:194) says that "in effect, not labor power (and the working class) but science (and knowledge classes) is the 'decisive factor' in the growth of the productive forces of society."

Thus, "post-industrial" society is the result of a "...gradual evolution from a capitalist to a technocratic type of economy" (Thatcher, 1978B:195). It is post-capitalist, and as such, class is no longer determined by ownership of the (physical) means of production. The antagonistic categories of capital and labor are rendered anachronistic.

> In the technocratic economy, functional efficiency, evaluated in terms of technical skill levels, provides the commanding criteria for the allocation of individuals to authority positions (Thatcher, 1978B:195).

Production and administration in post-industrial society are automated, computerized, and bureaucratized. Expert knowledge is the scarce factor which becomes the single most important and powerful attribute.

Technical advancement in Western industrialized capitalist countries is science-based; so higher education has become essential for the development of technical skills and knowledge which have become the new basis for authority and power. Post-industrial theorists assert that power, which belonged to the owners of physical capital in capitalist society, has shifted to a highly educated, technocratic elite in the post-capitalist, "post-industrial" society.

Furthermore, post-industrial society is posited to be meritocratic. Power, status, and wealth are all to be earned through achievement based on mastery of scientific knowledge and technical skills -- not based on ascriptive or particularistic factors.

Expert knowledge based on science and learned in institutions of higher education and the principle of merit based on achievement rather than ascription are central concepts common to post-industrial theory in sociology, human capital theory in economics, and the technical-function theory of education. These theories focus on the key role of schooling in the production of knowledge, as the institution geared to the production of cognitive and technical skills, as the vehicle for upward mobility, and as the ultimate legitimator of the social order and one's place in it.

Bell (quoted in Karabel and Halsey, 1977B:607) describes the post-industrial society as a meritocracy in which

> (d)ifferential status and differential income are based on technical skills and higher education. Without those achievements one cannot fulfill the requirements of the new social division of labor which is a feature of that society. And there are few high places open without those skills.
>
> ...Technical skill becomes a condition of operative power, and higher education the means of obtaining technical skill. As a result, there has been a shift in the slope of power, as, in key institutions, technical competence becomes the overriding consideration...Increasingly, the newer professional occupations, particularly engineering and economics, become central to the technical decisions of the society. The post-industrial society, in this dimension of status and power, is the logical extension of the meritocracy; it is the codification of a new social order based, in principle, on the priority of educated talent.
>
> In social fact, the meritocracy is thus the displacement of one principle of stratification by another, of achievement for ascription.

In the words of Daniel Bell (quoted in Karabel and Halsey, 1977B:608), "(t)echnical skill, in the post-industrial society, is what the economists call 'human capital'."

[2] The poor includes individuals from minority ethnic and racial groups, women, the elderly, the young, the disabled, and white males with less than a high school education -- whether employed or unemployed.

[3] Political and social equality of all individuals in society stems from liberal philosophy and English utilitarian philosophy. The equality to which most politicians and social reformers of the 1960's and 1970's refer is social and political equality. Economic equality for all is not a goal. Economic inequality which is not

based on achievement and merit, however, is seen as illegitimate.

[4] One of the main ideas of the New Deal was that increased government spending would increase effective (aggregate) demand, dampening, if not eliminating, the downward phases of the business cycle. This would stabilize the economy and the resulting economic and social climate would be more favorable to both capital and labor. Unfortunately,

> (t)he New Deal managed to push government spending up by more than 70 percent, but this was nowhere near enough to bring the economy to a level at which human and material resources were fully employed... unemployment was still well above 15 percent of the labor force (Baran and Sweezy, 1966B:175).

Only the outbreak of World War II saved the American economy.

[5] Canada has a unique position in the Western capitalist world because of its hinterland, dependent status vis-a-vis the United States (and, previously, Great Britain). Canada did not become an industrialized capitalist state until after World War II. Though Canada has since entered the phase of monopoly capitalism, it is a very peculiar form because of the branch plant economy and the fact that nearly all of the large, multi-national corporations are foreign-owned. So, although Canada is a "developed", modern, industrialized, capitalist society, it is very much an "odd" case vis-a-vis other Western capitalist states precisely because of its hinterland status as a nation.

[6] State economic planning to minimize, if not eliminate, severe fluctuations in the business cycle (as well as the resulting socio-economic and political crises) includes the development of appropriate discretionary fiscal and monetary policies to regulate aggregate demand, provide a favorable investment climate (e.g., high profits), high and stable employment, relative market stability, and a rising standard of living, as well as labor and social welfare legislation to provide a minimum level of socio-economic security for all individuals.

Justification for state intervention in the economy was "...based on the Keynesian view that the general level of activity in the economy was governed by the level of investment and the level of effective demand" (Wolfe, 1977A:252). Accordingly, it was argued that the state should maintain a high level of effective demand "...to improve private firms' expectations about the future rate of return on their potential investment projects, and thereby to guarantee a high and stable level of employment and income for the whole economy" (Ibid.:253).

Discretionary fiscal and monetary policies (deficit and surplus budgeting) are used to regulate economic growth -- to stabilize it.

Governments have alternated between expansionary and restrictive fiscal and monetary policies depending on the relative severity of economic and political crises as well as in response to the need for balancing accumulation and legitimation functions in light of pressure from both capital and labor (Wolfe, 1977A:269).

Baran and Sweezy (1966B:145) consider the tremendous surplus of goods and capital to be characteristic of advanced (monopoly) capitalism and that "(i)t has been through changes in the overall total of spending that government has exercised its greatest influence on the magnitude of effective demand and hence on the process of surplus absorption." Government spending in the United States has increased absolutely and as a percentage of GNP since 1903 (Ibid.:146). Indeed, there has been "...a strong tendency to keep pushing up the level of government spending"; "...more government spending means higher incomes out of which increased taxes can be paid" (Ibid.:163).

Growth of the Canadian money supply during the 1970's has more than doubled the rate maintained during the 1960's (Wolfe, 1977A:267). Canadian (federal) government total cash requirements have increased from a deficit of -$376 million in 1960 to a deficit of -$1,507,000,000 in 1975, with a deficit budget from 1970 through 1975 (with the exception of the Nov. 18, 1974 budget, which had a surplus of $250 million)(Ibid.:266-267).

O'Connor and Offe point out that state intervention in the economy and responsibility for its management have reduced the risks for both capital and labor. By taking on the functions of legitimation and accumulation, the state has become answerable to both capital and labor. Capital is subsidized, guaranteed high levels of demand, and provided with relative market stability; and labor is promised employment, and for those who are unemployed, the private costs are reduced and subsidized by the state. "Full" employment policies provide for a sustained, high level of demand which is required by capital for continued investment. "Full" employment also acts as a good legitimator for the system; it minimized class conflict and worker insecurity and inculcates worker loyalty (Wolfe, 1977A:254).

Social welfare programs and services have

> ...also contributed significantly to maintaining high levels of effective demand throughout the post-war period and thus to the general level of economic buoyancy. The stabilizing effects of income transfer programs are even greater when employment begins to fall because of the automatic rise in spending on programs such as unemployment insurance (Wolfe, 1977A:253).

In addition to fluctuations in government spending, the state uses fiscal policy to stimulate or dampen the economy by lowering or raising corporate and/or personal taxes. Tax incentives are developed

> ...to reduce the effective cost of capital to corporations and thus increase their inducement to invest. The various devices employed, such as accelerated depreciation allowances, investment allowances, lower corporate tax rates, and tax incentives for research and development, have all had the effect of reducing the level of effective taxation on those corporations willing to undertake research or investment projects at the time and of the magnitude desired by their respective governments. In periods of growing pressure on corporate profit rates, tax policy has been used consistently to maintain a stable level of post-tax profit rates. Corporate tax policies have thus played a central role in the maintenance of profitable accumulation in advanced capitalist economies (Wolfe, 1977A:253).

Furthermore, Wolfe (1977A:253) states that

> (t)hese policies have been complimented by a series of others, such as selective nationalizations of less profitable industries, provision of subsidized sources of credit, improved regulation of international financial and monetary relations, and the reduction of international barriers to trade through successive rounds of the General Agreement on Tarrifs and Trade. All of these measures have expanded the role played by the state in the economies of advanced capitalism and have helped to maintain the conditions for profitable capital accumulation.

[7] The underlying belief in the establishment of the welfare state is that economic growth (stimulated or sustained by state fiscal and monetary policies) would enable the state to afford more social benefits which would, in turn, further stabilize the economy.

[8] Michel Kalecki notes that in addition to an economic business cycle, there is now a "political business cycle" (see Wolfe, 1977A:256).

[9] There is a legacy of progressive education which goes back nearly a century in North America which has had some influence on educational philosophy and government educational policies. It was primarily a result of the progressive education movement that power (administrative and financial) over schools was centralized and consolidated into provincial and state departments of education

in Canada and the United States respectively. The new development in the 1950's was the growing acceptance of belief by liberals that the federal government should intervene directly into the affairs of education, which is constitutionally not a federal jurisdiction. This direct intervention by the federal government in education was considered necessary as part of the functioning of the modern liberal welfare state.

[10] Increasing economic efficiency was a foremost concern, particularly of the United States, because of the political crisis over Soviet advances in science and technology. Human capital theory provided a key to overcoming this crisis by providing a theoretical rationale for increasing economic growth, productivity, and profits.

[11] The converse of this, downward mobility of some members of the dominant (or "advantaged") group, is implied but never dealt with explicitly.

[12] The fiscal crisis of the state in advanced capitalist countries began in the late 1960's and has continued to worsen. The state has increased expenditures much faster than its revenues. At the same time, the economic growth rate has dropped significantly. Public debt has reached astronomical heights. There are several factors which have caused this fiscal crisis. A sustained economic slowdown (recession) with high unemployment, the new phenomenon of inflation, increased international competition, declining profits, decreased investment, decreased research and development, a drop in the standard of living, increasing socio-economic inequality, high interest rates, a drop in the exchange value of the dollar (especially the Canadian dollar), balance of payments deficit, and a shift in state revenue from corporate taxes to personal income taxes have all contributed to this crisis.

"According to O'Connor, the modern capitalist state has increasingly socialized many of the costs of production (e.g., education, research, health, etc.), but must continue to rely on taxes to finance its expanded activities" (Silverman and Yanowitch, 1974B:393). Many of these state expenditures are subsidies to private capital. However, the social and reproductive costs of production have also been socialized (O'Connor, 1974A:434). The fiscal crisis of the state occurs because "the state has socialized many costs of production but has not socialized profits" and because the cost of inflation is passed on to the state sector and the competitive sector of the economy; the state has socialized the production costs and has guaranteed profits for private enterprise (*Ibid.*)

The severity of stagflation and the inability of advanced capitalist states to resolve this economic crisis has resulted in a new political crisis. It is a crisis of legitimation as well as accumulation.

By intervening in the economy, the state has attempted "...to reduce the historical costs of the market to both capital and labor..." and in doing so, "...the state has transferred the sphere of class conflict from the economic order to the political order" (Wolfe, 1977A:255).

[13] Inflation is a perplexing problem for economists. Samuelson (1971, quoted in Fry, 1979B:35) states that

> (c)reeping inflation is the malaria of the modern mixed economy. Like malaria it is uncomfortable to live with and just will not go away. But unlike malaria, there seems to be no known cure for creeping inflation that is better than the disease.

Inflation became the new and primary economic problem of the late 1960's. Governments concentrated on developing policies to lower inflation even though they resulted in increased unemployment because uncontrolled inflation was deemed to be the most detrimental to the economy in the long-run. The change of focus from unemployment to inflation can also be considered part of the change from competitive laissez-faire capitalism to monopoly capitalism.

> State regulation of aggregate demand within a structure of union-management collective bargaining in monopolistic industries has shifted preoccupation from economic depression to the problem of inflation (Silverman and Yanowitch, 1974B:392).

[14] High expectations held by the general public during the 1970's presented a particularly problematic political problem to liberal and social democratic governments. Lowering these expectations was a political necessity if the crisis of legitimation facing the state was to be resolved peacefully.

Prime Minister Trudeau of Canada was quoted in Maclean's (Jan. 10, 1977:8) as stating that

> ...a large part of my message as a politician is to say: we have to put an end to rising expectations. We have to explain to people that we may even have to put an end to our love for our parents or old people in society, even our desire to give more for education and medical research (quoted in Finkel, 1977A:364).

Bell (1973) has aptly remarked that "(t)he revolution of rising expectations is also the revolution in rising ressentiment" (quoted in Karabel and Halsey, 1977B:626).

[15] It has been explicitly recognized and publically stated by politicians and economists that the public policies and programs devel-

oped to lower unemployment, eliminate poverty, and improve the standard of living depend upon a high, if not continually increasing, level of economic growth. Hubert H. Humphrey (in Everett, 1966B:8-9) stated that

> (f)irst, aggregate demand must be maintained at a high level. A downturn in our economic growth rate would undo all the other programs which might be conducted. Educating and training men for jobs that do not exist is futile.
>
> Since the passage of the Employment Act of 1946, it has been recognized explicitly that the federal government has a primary responsibility for maintaining aggregate demand...[and] for maintaining employment, production, and purchasing power.

Lack of aggregate demand has been the reality since the late 1960's. In addition, automation has contributed substantially to the drop in demand for workers since the late 1950's. It is increased capital substitution for labor (e.g., automation) which is now the greatest threat to workers.

> What automation is beginning to do already [1966] is to freeze those conditions in our society which tend to perpetuate the sons and daughters of the poor in the cycle of poverty and to perpetuate the sons and daughters of the middle-class and wealthy in the cycle of middle-class and wealth. The basic reason for this ossification is that, for the first time in the history of man, education is placed squarely between man and the work which is his means of livelihood...Unless the link between dropouts from education and young people from low-income homes is broken before the full impact of automation makes itself felt in the world-of-work, automation will virtually eliminate social mobility from one generation to the next (Reid, 1966A:53-56).

While automation was common and widespread during the 1950's, automation did not result in high "technological unemployment" during the late 1950's and early 1960's because the world-wide economic expansion resulted in a rapid expansion of public sector employment. Thus, the public sector was able to absorb the labor which was being replaced in the private sector by capital.

During the late 1960's and 1970's, the world-side economic deterioration caused by stagflation has caused the public sector to stagnate as well. Governments are cutting back on their public sector expenditures. Consequently, "...concern over the impact of technology on jobs has once again surfaced" (Gonick, 1978B:141).

Jack Shingleton, Director of Michigan State University Placement Services stated that

> It is becoming increasingly evident that unemployment is not the number one problem plaguing college graduates in the market place. Rather, it is underemployment. The prospects of underemployment seem to increase with each passing year (MSU Placement Services, 1974B:1).

Barry Bluestone (1977A:102) adds that

> The inadequate incomes of most of the working poor are not of their own making. If we are to blame them for anything it must be for not having the good fortune to complete an education topped off by a college degree. Rather we must blame the economic system which in too many instances provides less than an adequate job for those of adequate talents.

The exclusion of well-educated people from productive employment in Canada is lamented by William A. Dyson in 1971 (quoted in Canadian Committee of the International Conference on Social Welfare, 1972B:10):

> Quietly our aggregate wealth, owned by someone grows. All views to the contrary, the issue is not that Canada has insufficient wealth;...The central problem is "people", not dollars: people being increasingly excluded from access to our riches, while a few others, here and abroad, are increasingly favored. Even worse, it is the exclusion of these people -- who grow in number and now include businessmen, scientists, and engineers -- exclusion from work, from status, from identity, from meaningful life.

According to Carnoy (1971B:1/51), increased educational attainment of workers has resulted in greater capital substitution of labor, greater unemploument of the less-educated, and underemployment of many of the better-educated.

> If wages for job categories are inflexible downwards, employers substitute higher skills for lower skills in these jobs.

> The greater the expansion of schooling,
> the greater the return to physical capital
> and the greater the average unemployment
> of lower skilled, less-educated workers.

[16] The crisis of the welfare state is a result of the continuing, unresolved fiscal crisis of the state in advanced capitalist countries. Since 1968, when there was a sudden, sharp increase in unemployment and the introduction of the new problem of inflation (the beginning of stagflation), governments have been unable to stabilize prices or lower unemployment rates. Voluntary wage and price controls in 1969 and 1970 were unsuccessful in Canada. The government increased taxes and began cutting back on public spending as well as introducing tight monetary policies during this period in order to slow down the Canadian economy and reduce inflation. The exchange value of the Canadian dollar was unpegged. Though inflation was slowed, unemployment increased. Continued tight fiscal and monetary policies created a political crisis late in 1970, so that the Canadian government was pushed to reduce tax rates for lower income brackets (Wolfe, 1977A:265-268).

Inflation has increasingly become the primary economic problem. In trying to lower inflation rates, unemployment rates have continued to increase. Thus, unemployment has become a political as well as an economic problem. Continued high unemployment is viewed as a political failure of governments (Wolfe, 1977A:255). This political crisis arises out of inconsistencies "...between legal and political equality guaranteed by the state and socio-economic inequality protected and maintained by the state" (Ibid.:257). These inconsistencies are revealed and exasperated by inflation. Hence, inflation is viewed as the primary economic problem because it has heightened the contradiction between the accumulation and legitimation functions of the state.

As a result of the political crisis in Canada, the government pursued expansionary monetary and fiscal policies between 1971 and 1973 in an attempt to provide incentives for investment and, hence, more jobs. The economy was stimulated, and in 1973, Canada experienced the "...largest annual increase in GNP since 1966, a moderate fall in the rate of unemployment, and a significant rise in the C[onsumer] P[rice] I[ndex].." (Wolfe, 1977A:273). Furthermore, by 1974, labor's share of national income dropped from 72.8% in 1970 to 67.9% and that of capital rose from 11.8% to 16.1% (Ibid.:274). Inflation, however, was on the rise again.

The weak recovery experienced during 1971-1973 was followed by a severe recession in late 1974 and 1975 which marked the end of economic buoyancy around the world. There was a massive economic shake-up in the world economy from which there have been only some weak recoveries. Since 1975, the world economy, and the Canadian one in particular, has been characterized by increasing inflation, increasing unemployment, depressed investment, protectionism, and government austerity (Gonick, 1978B:109-112).

Gonick (1978B:108) remarks that the 1975 recession was not only "...the most severe since the Great Depression", but also "...the first generalized recession since the end of the Second World War, the most serious recession in forty years precisely because it was synchronized throughout the capitalist world."

> Industrial production in Canada fell by 4.6 per cent between 1974 and 1975, in the U.S. it fell by 9 per cent; in Italy and Belgium by 10 per cent; in Japan by 11 per cent. Exports declined for the first time in fifteen years. Unemployment rose to postwar highs (Gonick, 1978B:108).

Thus, the fiscal crisis of the state has deepened to crisis proportions. Liberal, social democratic governments have had to severely cut back public expenditures, particularly funding of social welfare programs.

In 1965, $75½ billion was spent on social welfare by all levels of government in the United States. This accounted for 39% of all public expenditures. Nearly 42% of this, or $31 billion, went to the pre-transfer poor (15½ million households). By 1968, the total had risen to $109 billion but its proportion of all public expenditures remained the same (39%). In 1972, the amount spent by all levels of government on social welfare had risen to $185 billion and its share of all public expenditures had risen to 46%. About $79 billion of this went to the pre-transfer poor (Plotnick and Skidmore, 1975B:172).

In Canada, widespread poverty amidst affluence continued to be a problem despite increased social welfare expenditures. A Special Senate Committee on Poverty was appointed to study the problem and make recommendations to Parliament. The report was published in 1971. It presented no real change in policy. However, a group of researchers who had resigned from the project because of differences with the Senators published their own report the same year. The Real Poverty Report proposed far-ranging reforms, from the establishment of a comprehensive earnings policy to combat gross income inequalities to policies to curb the independent powers of corporations to make economic policy, the centralization of collective bargaining for workers, and the expansion of manpower training programs. The Canadian government, however, made no change in social welfare policy except to cut back expenditures.

With unemployment rising throughout the 1970's, unemployment insurance and welfare budgets have been exhausted. Because of the continuing fiscal crisis, the state has changed eligibility requirements and benefit levels of those programs. The National Council of Welfare (1971B:24) points out that because the Canadian government pay 50% of provincial welfare costs, conflict between the federal and provincial governments over welfare budgets increased at the same time the need for social welfare benefits has increased.

> When a sudden, massive increase in unemployment results from federal Government fiscal and monetary policy to attempt to combat inflation as at present, welfare rolls increase accordingly... The response of this increase in welfare rolls, in provinces and municipalities across Canada, has been to cut back on already inadequate benefits and to apply eligibility requirements even more repressively (National Council of Welfare, 1971B:24).

Another phenomenon which has intensified the fiscal crisis of the state in Canada is the fact that since 1960, there has been a progressive shift in the revenue base of all levels of government in Canada from corporate taxes to personal income taxes. The proportion of government (all levels) revenue derived from corporate taxes fell from 14.8% in 1960 to 9.5% in 1971 and that of personal income taxes rose from 25.5% in 1962 to 38.5% in 1975. Corporate income taxes did rise to 10.7% in 1975, but this rise was due to higher corporate profits and not to higher corporate taxes. At the federal government level, this is even more pronounced. Whereas corporate taxes accounted for 20.1% of federal government revenue in 1960, and personal income taxes for 37.3% in 1962; the former dropped to 15.3% and the latter rose to 49.6% in 1975. Wolfe (1977A:275) attributes this shift to the "...state's strategy to support and promote the conditions for the profitable accumulation of capital in Canada."

Nevertheless, this increase in personal income taxes has fueled inflation. It has also led to increasing labor militancy as workers have been squeezed by rising inflation, rising taxes, and rising unemployment. This has made it necessary for governments to develop crisis management strategies in order to try to balance the functions of legitimation and accumulation which have increasingly conflicted openly (Wolfe, 1977A:276-277).

One such crisis management policy was the development of wage and price controls in the United States by the Nixon administration. When this program was implemented in August 1971, the inflation rate was 8.5% and unemployment was 5.9%. When the program ended in January 1973, the inflation rate was 3.3% and unemployment was 5%. By the end of 1973, however, the inflation rate had risen to more than 6% and the unemployment rate jumped to over 11% by early 1974 (Plotnick and Skidmore, 1975B:111).

In Canada, a program of selective wage and price controls was introduced in October 1975. The objective was to lower the 10.8% rate of inflation. The unemployment rate was 7.1% (Wolfe, 1977A:259). There was widespread resistance to wage and price controls, especially because the American program had not resulted in any long-term improvement.

Resistance to wage and price controls was particularly strong from labor. The struggle between labor and capital for division of the national income had been intensified by the persistence of stagflation and the contraction of the economy. The Canadian Labor Congress maintained militant opposition to wage and price controls. In March 1976, CLC members protested in Ottawa. A National Day of Protest was declared on October 14, 1976, when over one million CLC members went on strike (Wolfe, 1977A:282).

The Canadian government continued a policy of fiscal and monetary restraint between 1975 and 1977. Inflation was reduced but the rate of unemployment continued to rise. There were 300,000 more Canadians unemployed by the end of 1977 (Gonick, 1978B:123). Capital investment and spending increased, but at a low level (Wolfe, 1977A:283). Business was uneasy about the economic slowdown. Wage and price controls were phased out on April 14, 1978, ending on December 31, 1978. The program had been the cause of much conflict and embarrassment for the government.

[17] The first serious proposals for a negative income tax were made by the conservative economist Milton Friedman in the late 1960's (Williamson, et. al., 1975B:207). President Nixon introduced the Family Assistance Plan in 1969, which provided for a negative income tax to poor families with children to replace the "...existing maze of welfare programs" (Plotnick and Skidmore, 1975B:181). The plan would replace all existing federal and state welfare programs as well as housing, education, and manpower programs. The savings in administrative costs were expected to be high.

The Family Assistance Plan passed the House of Representatives, which had a conservative majority, by a two-to-one vote (Williamson, et. al., 1975B:208). Liberals generally accepted the idea of a negative income tax and it was part of Senator George McGovern's presidential campaign in 1972. Liberals supported a negative income tax because they considered it "...less stigmatizing, more efficient, and more equitable than the present welfare system...as a way to deliver more in the way of welfare benefit per dollar of federal welfare spending" (Ibid.).

In 1972, however, the FAP was defeated in the Senate Finance Committee by strong liberal opposition. Although the welfare system was under attack by liberals and conservatives alike and although both liberals and conservatives supported the idea of a negative income tax to replace the existing welfare system, liberals defeated the FAP because they felt it had a number of serious short-comings. Liberals objected to benefits being restricted to families with dependent children, to generally low benefits, to the work provision, and to the fact that it would replace all other welfare programs and services (Williamson, et. al., 1975B:212, footnote 5).

Another attempt was made to restructure social welfare in the United States with a negative income tax in 1974, but it "...never reached the stage of a legislative proposal" (Plotnick and Skidmore, 1975B:181).

There has been no serious consideration of a negative income tax or anyother direct income redistribution plan since then, primarily for political reasons. The fear that a guaranteed minimum income would be a disincentive to work goes against strong belief in the work ethic. There is also strong public resistance to providing the poor with untied money. Many of the poor themselves were against the abolition of existing programs because their benefits would be reduced (Plotnick and Skidmore, 1975B:182). Furthermore, those who would carry the tax burden of financing the program are also the ones with the most political influence. If they believe the distribution of income will be changed significantly by a proposed reform of social welfare, they will resist it (Williamson, 1975B:207).

[18] The sociological literature dealing with the disappearance of class and class differentials which was so characteristic of post-industrial society theory and technological functionalism was based on a conceptualization of class, developed from the work of Warner, which use an aggregate score of a number of individual attributes (such as occupation, income, neighborhood of residence, education, etc.,) to determine class, rather than an analysis of the social structure. In making this observation, Mackenzie (1973B:174-175) states that "(p)ositions in the class structure thus become equated with status scores or indices of style of life...(T)his is a fundamentally non-sociological approach to the analysis of class structure..."

In Mackenzie's (1973B:175) opinion, a more appropriate "...view of class structure is one which lays stress upon the economic bases of social class...to position in the division of labor" rather than on income or life-style. The producer function of individuals is more relevant to class determination than is their consumer fashion. "...(L)ife chances are determined not simply by level of income, or exposure to television or other suburban dwellers. Rather they are crucially influenced by the individual's situation in the system of production" (Ibid.).

[19] Neo-classical economic analysis of the labor market is based on the principle of marginal productivity. Perfect competition and market equilibrium are part of this concept. The unit of analysis is the individual. It is assumed that individuals try to maximize the use of their time and energy, referred to as "worker sovereignty". Human capital theory is part of this paradigm.

There are other labor market theories. According to the dual labor market theory, there are two separate labor markets, the "primary" and the "secondary". There is very little movement of workers between these labor markets. The working conditions, organization of work, wage scales, benefits, and desired worker attributes differ significantly between these two labor markets. (See Doeringer and Piore, 1971B; and Gordon, 1972B,1977B).

From the dual labor market theory of the late 1960's, radical economists have formulated the radical theory of labor markets. This draws from the dual labor market theory and the labor market segmentation theory formulated by Reich, et. al. (1975B). The radical theory of labor markets uses Marxist class analysis and the theory of surplus-value to explain labor market dynamics and the stratification and segmentation of the labor market by class, sex, race, and age.

[20] The political function of the hierarchical structure of occupations in advanced capitalist countries is that of enhancing accumulation of capital. By decomposition of tasks and bureaucratic organization in the work place, automation is increased and important changes in the social relations of production as well as in the rate of surplus value occur which are of benefit solely to capital.

Squires (1979B:31-32) presents this argument from a radical perspective rather well in the following lengthy quotation:

> The decomposition of tasks and the bureaucratic organization of work remove knowledge and control of the productive process from those actually involved in production and place that knowledge and control in the hands of those at the top of the pyramid, the capitalists. Stephen Marglin summarized the function of these two changes in the organization of work in the following words:
>
> > Rather than providing more output for the same inputs, these innovations in work organization were introduced so that the capitalist got himself a larger share of the pie at the expense of the worker, and it is only the subsequent growth in the size of the pie that has obscured the class interest which was at the root of these innovations. The social function of hierarchical work organization is not technical efficiency, but accumulation. [Marglin, 1974A:62]
>
> The implementation of modern machinery represents one change in the productive process which has evolved, ostensibly, for the purposes of expanding production, improving the efficiency of production, and increasing the total wealth of society in general. But there are important social implications involved in the use of modern machinery, according to the radical interpretation. As Braverman [1974B:147] argued:
>
> > Machinery comes into the world not as the servant of "humanity", but as the instrument of those to whom the accumulation of capital gives the ownership of the machines.

> The capacity of humans to control the labor process through machinery is seized upon by management from the beginning of capitalism as the prime means whereby production may controlled not by the direct producer but by the owners and representatives of capital. Thus, in addition to its technical function of increasing the productivity of labor -- which would be a mark of machinery under any social system -- machinery also has in the capitalist system the function of divesting the mass of workers of their control over their own labor.

The radical challenge maintains that conventional theory ignores important social dimensions of work, particularly the primacy of capital accumulation and the exploitative relationships which result from that driving force, while accepting the technological justification for changes in the work process along with the notion that all groups of people benefit from those changes. Rather than viewing capitalism as one unique form of a modern industrialized society, conventional analysis draws conclusions about industrialism in general from its observations of capitalist societies. By failing to take into consideration the social dimensions of work which are inherent in a capitalist society but not in all industrial societies, the conventional analysis misses the most salient defining characteristics of American life.

[21] See Chiswick and Mincer, 1972A.

[22] Elite analysis conceptualizes society in terms of elite versus non-elite groups. Carnoy (1971B:1/2) states that

> ...elites are much more socially cohensive than non-elites. An elite is a relatively small group which comprehends its policy-making power (Mills, 1959). It is held together by this "responsibility", by its small size, and by oligopoly (collusive) arrangements in its use of resources (Baran and Sweezy, 1966). The analysis assumes that the elite is organized and exercises monopoly control over many facets of economic, political, and social life. A society may have competing elites with different interests. Each elite group is organized and attempts to structure institutions to favor its interests. On the other hand, the non-elite

3

> generally does not exhibit social cohesiveness (or is prevented from doing so by the elite), so members of the non-elite behave largely as individuals, competing with each other, their differences rarely include any elimination of the elite/non-elite hierarchy.

[23] Economists consider a **Westernized**, "modern" elite to be necessary for the socio-economic development of underdeveloped countries. Traditional, "uneducated" elites are considered "backward" and an impediment to development. Because access to the new elite is dependent upon one's formal education and merit, it is possible for members of the traditional non-elite to attain elite or sub-elite status. Thus, "...the educational system retains its legitimacy as the vehicle for social mobility in the eyes of the non-elite" (Carnoy, 1971B:1/61, footnote 2).

[24] Carnoy (1971B:1/51) states that human capital elites and physical capital elites may or may not be the same. In the socialist and communist states these elites are usually the same; however, in "private enterprise" states, they may be different.

Conflict between human capital elites and physical capital elites in the United States has resulted in vocational education at the secondary school level. Carnoy (1971B:1/54) explains that the

> (o)wners of physical capital desire cheaper skilled labor and would like to avoid bearing the cost of on-the-job training. Owners of secondary and university level human capital wish to keep the wages of academically trained labor high. There is pressure from non-elites to gain access to the high wages associated with secondary training. The compromise among the elites with competing goals -- one wanting a rapid expansion of secondary school output, the other a much slower increase -- is to increase secondary school trained labor, but labor which is not competitive with academic secondary output. Vocational training shifts the burden of skill development out of the factory into the public sector, subsidizing industry (owners of physical capital). Although vocational schools attract those private students unable to enter the academic track, owners of physical capital are clearly better off with vocationally trained labor than if they had to train the labor themselves. The human capital elite is better off because they have reduced the rate of increase of competing labor force.

> The non-elites who get vocational training would appear also to be better off relative to a condition in which there were no secondary schooling available for them at all. However, they also appear to be aware that they have been assigned a low status role in the economic hierarchy...
>
> In the United States, the vocational track of the general high school was conceived as a means of permanently assigning non-elites to certain roles in the economy (Lauter and Howe, 1970). Junior colleges, which in many ways serve the same vocational purpose today, have been described by Clark as also a means of "cooling out" students who may have otherwise demanded university training (Clark, 1965).

There are negative aspects of this compromise between human capital and physical capital elites, especially for the non-elites. Those workers who attend vocational secondary schools become taxpayers who subsidize universities and specific industries. They have low status jobs in factories and often cannot get jobs which match their training.

It is the needs of the elite groups and not those of the non-elites which are met by the compromise of vocational education.

[25] Carnoy (1971B:1/7) states that

> Production function estimates for the school as a firm assume that schools produce education for children of elites and non-elites and are maximizing the achievement output of schools for both groups (Hanushek, 1968; Kiesling, 1967). Yet the combination of resources used seems to be more nearly efficient for the former than for the latter (Levin, 1970). The normal reaction is that the schools are blatantly discriminatory, but the functions estimated by these economists may be misspecified. Schools may be efficiently producing a different set of outputs for elites than for non-elites.

[26] Since the passage of Title VII of the Civil Rights Act of 1964, it has become very difficult for employers in the United States to use education, sex, age, and race as the basis for employment. Squires (1979B:196-197) sees this erosion of traditional sources of authority and Legitimacy leading to more conflict as the economy continues to stagnate. This conflict will fall along lines of race and class.

[27] Rising educational attainment of workers since World War II has been accompanied by an increase in educational qualifications demanded by employers. As more individuals graduate from colleges and universities, hiring standards are upgraded. This educational inflation has been called educational "credentialism".

On a global level, there is a correlation between rising educational attainment levels and rising unemployment (Carnoy, 1975A). What has occurred in both the developed and underdeveloped countries is a decreasing ratio of labor to capital. Employers substitute those with more schooling for those with less schooling. Automation takes over many jobs previously done by the unskilled and less-educated (Spence, 1973A, 1974B).

Skill labelling and the "sheepskin effect" of educational credentials have become common (Leibenstein, 1965A, 1969A). Often, the job obtained has little to do with one's education. Employers use educational credentials as an index of trainability (Blaug, 1972A:71).

The American economist, Kenneth J. Arrow, asserts that education is a screening device for employment, that schooling contributes nothing to one's capabilities for productive actitity. Educational credentials, however, are used to sort people according to traits which ensure high productivity (Arrow, 1973Aa). See also Taubman and Wales, 1974B; Fleming, 1974B; Sewell, 1971B; Rees, 1965A; Solow, 1965A; Blitz, 1962A; Hansen et. al., 1970A; Keats, 1965B; and Thurow, 1974A.

[28] This is because individuals have been provided with educational and employment opportunities on the basis of ascribed traits like sex, age, race, and class rather than on merit (as measured by achieved traits). Furthermore, in providing quotas to enable proportional representation, affirmative action programs have denied qualified members of the dominant group opportunities.

[29] Because strategies for affirmative action include the lowering of, and often the elimination of, entrance requirements for post-secondary education, post-secondary institutions are faced with the problem of either lowering academic standards and requirements for graduation and/or massive remedial and up-grading programs for these individuals. Some institutions, such as New York City College, have done both and have been severely criticized as a result (Pincus, 1974A).

[30] From the point of view of elite analysis, expansion of education to accommodate increased social demand for it presents the elite with a dilemma.

> Since education is held up by the elite as the legitimator of their rule and as the means to gain economic advantage and social

> status, access to education becomes a crucial political issue. A dilemma for the elite is how to satisfy the social demand for more and more schooling *without* giving away economic and policy-making power. The current structure of the schools solve this dilemma by restricting the high return (in terms of higher income) component of formal education to schooling levels accessible almost exclusively to the elite. Within levels of schooling, the curriculum, teachers, and other inputs are more efficient producers of achievement and modernization for those who enter school with an already higher level of these outputs. The high return component of education is distributed to those with elite characteristics over those without. This leaves most of those who believe in education as a road to economic success holding more education but little absolute increase in income or political power. Potential disillusionment creates a second dilemma: if the elite provides education without economic (or at least other intangible) benefits, they may be promoting their own overthrow. The elite can deal with this problem by becoming more hierarchical (dictatorial) or attempting to expand the opportunities for employment, or both. Again, however, the first line of defense is the educational system itself. Schooling socializes the individual to believe that if he fails, it is his fault, not the system's (Kozol, 1967). The system is fair, he is taught. But he, the failure, has not met its needs or requirements. If the individual is convinced of this, even lack of employment will not seem unreasonable to him (see Illich, 1968). (Carnoy, 1971B:1/5-1/6).

Not only the poorly educated or the college drop-outs personalize their failure, but even individuals who are very successful in the educational system such as engineers and scientists who are not employed in their area of specialization see this in very a-political terms, often blaming themselves for not working hard enough to prove themselves at research, etc.

Carnoy (1971B:1/61, footnote 3) makes the point that many of the economically successful well-educated individuals are not necessarily members of the elite.

> The advent of technology has provided another possibility for the elite to avoid political problems. The tendency to provide education in "neutral" or "objective" fields like engineering or other technological professions allows

> the non-elite to participate -- if they participate at all -- in the economic gains but makes them very a-political.

[31] The "cooling-out" function of education is not a concept devised by radicals. Rather, it is one reflecting the concern by technological functionalists for the rising tide of public expectations in light of the socio-economic realities. As Clark (1961:513) points out,

> (a) major problem of democratic society is inconsistency between encouragement to achieve and the realities of limited opportunity. Democracy asks individuals to act as if social mobility were universally possible; status is to be won by effort; and rewards are to accrue to those who try. But democratic societies also need selective training institutions, and hierarchical work organisations permit increasingly fewer persons to succeed at ascending levels. Situations of opportunity are also situations of denial and failure. Thus democratic societies need not only to motivate achievement but also to mollify those denied it in order to sustain motivation in the face of disappointment and to deflect resentment. In the modern mass democracy, with its large-scale organisation, elaborated ideologies of equal access and participation, and minimal commitment to social origin as basis of status, the task becomes critical.

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